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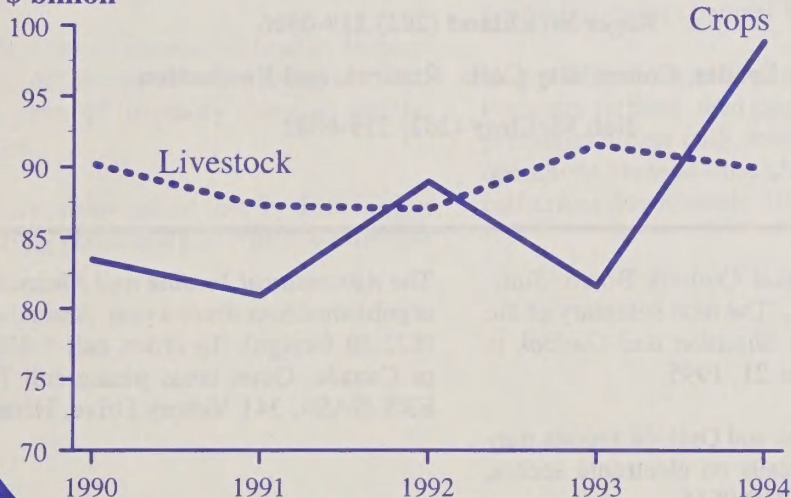
AIS-58
September 1995

Agricultural Income and Finance

Situation and Outlook Report

Excellent weather in 1994 produces record harvest!

Value of output
\$ billion



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Summary

Farm Income for 1995 Forecast Near 5-Year Average

Farm income in 1995 is forecast to range between \$40 and \$50 billion, close to the 1990-94 average. With a smaller harvest prompting higher prices, crop receipts could surpass the 1994 record. In contrast, livestock receipts may be lower than the previous 5-year average, as large red meat supplies pressure prices downward. Because of higher 1995 grain prices, government payments—forecast at \$5-7 billion, could be the lowest for any year in the 1990's. Overall farm sector profitability and solvency should be stable.

Final Estimates Completed for 1994 Show Net Farm Income Up 11 Percent

Final estimates just released put 1994 *net farm income* at \$46.7 billion, up \$4.7 billion from 1993. The 1994 estimate is \$3 billion below July's forecast, due primarily to higher reported expenses and revised forest product receipts. The estimate, developed from survey and other data collected throughout 1994, also shows that economic gains from 1994's record crops were partially offset by lower harvest prices.

By contrast, 1994 *net cash income* decreased \$8.3 billion from 1993. Gross cash income, at \$196.7 billion, was \$2.9 billion lower than in 1993. Although total farm marketings increased \$2.5 billion, the increase was more than offset by a \$5.5-billion reduction in direct government payments and a \$5.4-billion rise in cash expenses. Government payments for 1994 were the lowest in a decade.

An \$8.7-billion rise in the value of inventories held by farmers accounts for much of the difference between rising net farm income (which includes value of inventory changes) and the declining net cash income.

Production agriculture's *net value added* rose by \$5.8 billion in 1994. The sector's strong economic performance reflected

a \$17.3-billion increase in the value of crop output. Most crop producers benefited from near perfect growing conditions throughout the 1994 cropping season.

Total farm business debt rose almost \$5.0 billion during 1994 to nearly \$147 billion, the highest since 1986. Farmers' borrowing increased in the same year that net cash income available to service debt decreased. Even so, the growth in farm borrowing does not appear to place an unmanageable burden on the sector's ability to repay.

Production costs also increased in 1994, with rising input prices pushing up costs for U.S. crop and milk producers. Prices paid for production inputs in 1994 rose an average 2.9 percent from 1993. The greatest increase was for fertilizer, up almost 10 percent. Cash rents rose an average 8 percent and machinery prices advanced 3-6 percent. Livestock operations were most affected by an average 6-percent rise in feed prices. The rise in feed prices was primarily due to high prices in the first three quarters of 1994 following the drought- and flood-damaged crops of 1993.

The total cash cost per acre of corn planted was 11 percent higher in 1994 than in 1993, while the economic (full ownership) cost was 12 percent higher. But higher yields reduced the cash cost per bushel from \$1.79 to \$1.38, and the economic cost per bushel from \$2.89 to \$2.24. Lower corn prices also raised the per acre deficiency payment from 1993 to 1994. The total economic cost per acre of soybeans planted was 7 percent higher in 1994 than in 1993, while the per acre cash cost was 5 percent higher. However, the costs per bushel were much lower in 1994 due to improved yields. Wheat production costs changed little in 1994.

Hog producers faced higher feed costs and lower sales prices. For dairy farmers, feed costs also rose but higher milk prices generated higher cash returns. Production costs of cow-calf operations showed little change in 1994, but with cattle and calf prices down nearly 10 percent, net returns fell.

Net Value Added and Net Farm Income Are Higher for 1994

Growth in net farm income supported by 1994 record crop production. Inventories of unsold crops and livestock were also a record high at the end of 1994.

Agricultural Sector's Net Value Added Rose in 1994

Production agriculture's net value added rose by \$5.8 billion (7.5 percent) in 1994 (see table 1). The sector's strong economic performance reflected a \$17.3-billion (21.2 percent) increase in the value of crop output. Most crop producers benefited from near perfect growing conditions throughout the 1994 cropping season. Higher expenditures for intermediate consumption outlays (up \$4.3 billion) and a significant decline in net government transactions (down \$5.8 billion) partially offset the gains achieved from the jump in crop production. Government payments rose sharply in 1993, to help farmers recover from the effects of flooding along the upper Mississippi River and its major tributaries and from drought in the Southeast.

All contributors to the sector's business activities — farm operators, their credit suppliers, hired labor, and landlords — shared in the expansion of net value added. The bulk of the gains accrued to farm operators whose earnings translated into a 11.1-percent rise in sector net farm income. Because they assume a large share of the risks of production, operators experience most of the short term fluctuations (losses as well as gains) in value of production due to temporary, unanticipated market and meteorological conditions. Earnings paid out to providers of non-equity capital (lenders) were up 7.9 percent, and employee compensation rose 2.1 percent.

Net Farm Income Higher in 1994...

Net farm income in 1994 was \$46.7 billion, up \$4.7 billion from 1993 (see table 2). Total farm production in 1994 reached record levels, rebounding from the weather-induced crop damage experienced in 1993. The economic impact of the substantial increases in 1994 production was partially offset by lower prices at harvest. Strong exports contributed to domestic farm income in 1994. The value of 1994 agricultural exports reached a record high, paced by solid growth in the sales of high-valued products such as meat, fruits, and vegetables. Even though the quantity of bulk commodity exports declined, the higher dollar prices during the first half of 1994 raised their export value.

In all, 1994 gross farm income reached a record \$213.5 billion (versus \$203.0 billion in 1993). The \$4.5-billion expansion in cash receipts from bumper crops was partially offset by a \$1.9 billion decline in livestock receipts. For the first time in the decade, total cash receipts from crops exceeded livestock receipts.

...But Net Cash Income Was Lower

By contrast, 1994's gross cash income at \$196.7 billion was \$2.9 billion lower than in 1993. A net increase in total cash

receipts ("farm marketings" in table 2) of \$2.5 billion was, in turn, more than offset by a \$5.5-billion reduction in direct Government payments. Government payments for 1994 were the lowest in a decade. This reduction in cash receipts was reinforced by a \$5.4-billion rise in cash expenses. As a consequence, net cash income in 1994 decreased by \$8.3 billion to \$49.8 billion. This places 1994 net cash income at slightly below the 1991 figure, previously the lowest in the 1990's. Net cash income moved in the opposite direction from net farm income, despite the favorable harvest, because farmers choose to hold substantial inventories from 1994 production, government payments were lower and cash expenses increased.

Farm Inventories Reach Record Highs

An \$8.7-billion rise in the value of inventories of commodities held by farmers accounts for much of the difference between rising gross farm income (which includes inventories) and the declining gross cash income (which excludes inventories).

The value of the increase in inventories in 1994 was exceptionally high. The inventory build-up reflects the rebuilding crop inventories drawn down following the short crops in 1993. Because of the larger 1994 production, farmers received lower prices for what they sold in the latter months of 1994. Consequentially, farmers delayed sales of a substantial portion of their production into 1995 on the expectation that prices would rise following the market lows associated with the harvest period. Rising livestock numbers added to the total inventories held at year's end.

Corn accounted for \$4.2 billion of the rise in farmer-held inventories, a function of its importance as the Nation's highest-valued crop and its sensitivity to weather conditions, which were near ideal in 1994. Inventories of cattle, soybeans, and cotton each rose about \$1.3 billion. Cattle and calves rank as the Nation's leading farm-produced commodity and soybeans are second only to corn in sales among crops.

Cotton is the ninth highest valued farm commodity, but part of the cotton inventories remaining unsold at the end of the year resulted from regional shifts in production. Gains in ginning capacity in the Southeast are lagging gains in production, delaying cotton marketings. Because cotton can be stored both before and after ginning, producers are willing to hold production following harvest rather than pay higher ginning costs. Consequently, investment in gins is likely to proceed at a measured pace as investors seek assurances that the region's rise in cotton production is not a temporary phenomenon.

Figure 1 -- Value added by farm sector increases, ..all contributing entities share growth

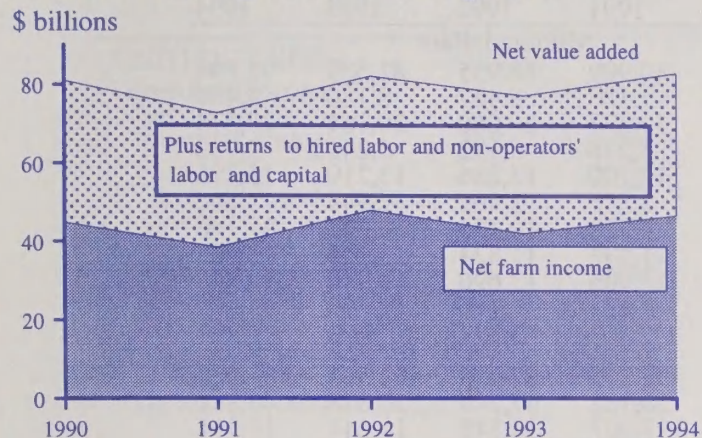


Figure 2 -- Net farm income rises in 1994

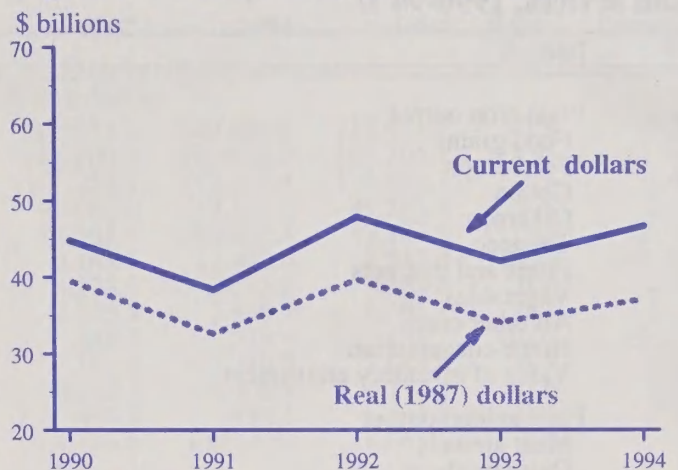


Figure 3 -- Gross farm income, expenses, and net farm income all higher than 1993

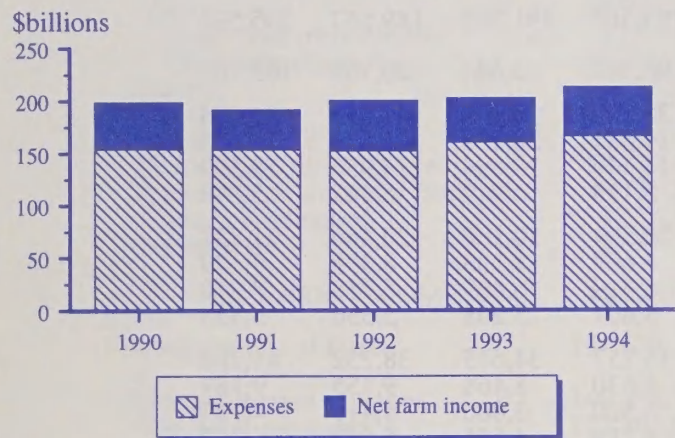


Figure 4 -- Cash receipts from crops exceeds livestock in 1994

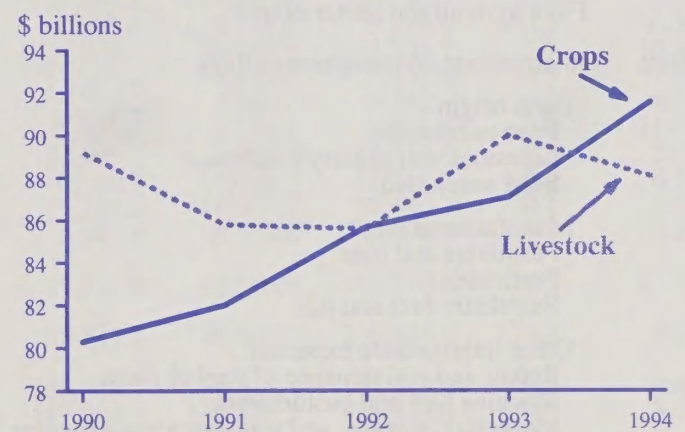


Figure 5 -- Sources of gross cash income: Crops up, government payments down

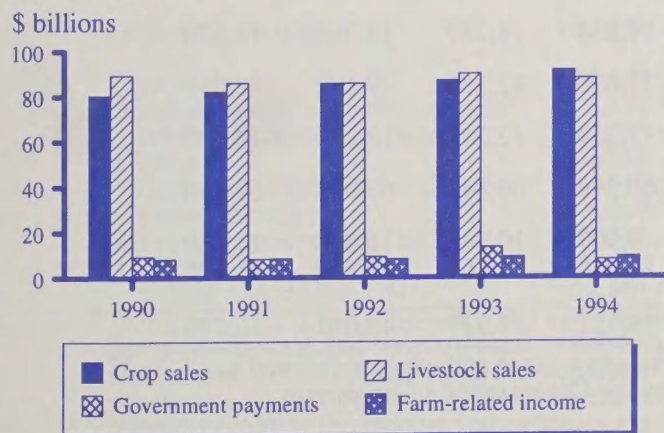


Figure 6--Net cash income declines in 1994

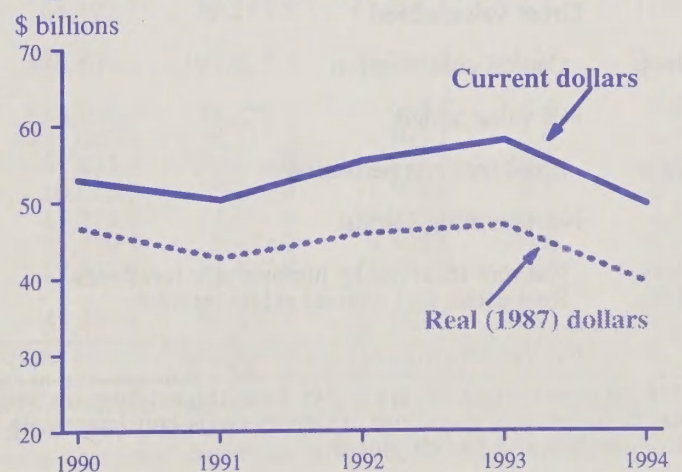


Table 1 --United States: Value added by the agricultural sector via the production of goods and sevicees, 1990-94 1/

Item	1990	1991	1992	1993	1994
	Million dollars				
Final crop output	83,447	80,909	88,955	81,589	98,894
Food grains	7,480	7,325	8,467	8,180	9,469
Feed crops	18,669	19,327	20,060	20,161	20,574
Cotton	5,488	5,236	5,192	5,249	5,730
Oil crops	12,258	12,700	13,286	13,219	15,216
Tobacco	2,733	2,881	2,962	2,949	2,646
Fruits and tree nuts	9,418	9,928	10,175	10,260	10,146
Vegetables	11,424	11,537	11,824	13,144	13,033
All other crops	12,785	13,066	13,696	13,940	14,748
Home consumption	146	122	116	69	72
Value of inventory adjustment	3,045	(1,214)	3,177	(5,582)	7,261
Final animal output	90,189	87,255	87,048	91,556	89,922
Meat animals	51,242	50,132	47,749	50,818	46,811
Dairy products	20,153	18,007	19,742	19,244	19,934
Poultry and eggs	15,262	15,129	15,503	17,300	18,443
Miscellaneous livestock	2,537	2,483	2,602	2,673	2,919
Home consumption	560	498	474	451	410
Value of inventory adjustment	436	1,007	978	1,070	1,405
Services and forestry	15,574	15,401	15,340	16,422	16,774
Machine hire and customwork	1,835	1,718	1,548	1,962	2,348
Forest products sold	1,914	1,868	2,188	2,515	2,690
Other farm income	4,486	4,699	4,440	4,606	4,116
Gross imputed rental value of farm dwellings	7,339	7,116	7,164	7,339	7,620
Final agricultural sector output	189,210	183,564	191,342	189,567	205,590
less: Intermediate consumption outlays	93,169	94,744	93,684	100,769	105,105
Farm origin	39,780	38,892	38,939	41,551	41,604
Feed purchased	20,387	19,331	20,132	21,434	22,633
Livestock and poultry purchased	14,875	14,449	13,894	14,955	13,599
Seed purchased	4,518	5,113	4,912	5,162	5,373
Manufactured inputs	19,359	20,594	20,100	20,466	21,721
Fertilizers and lime	8,208	8,667	8,333	8,398	9,179
Pesticides	5,362	6,319	6,469	6,718	7,219
Petroleum fuel and oils	5,790	5,607	5,298	5,350	5,323
Other intermediate expenses	34,029	35,257	34,645	38,752	41,780
Repair and maintenance of capital items	8,552	8,630	8,468	9,155	9,187
Machine hire and customwork	3,565	3,520	3,806	4,411	4,783
Marketing, storage, and transportation expenses	4,211	4,719	4,541	5,648	6,707
Contract labor	1,601	1,572	1,717	1,771	1,805
Miscellaneous expenses	16,101	16,816	16,113	17,766	19,297
plus: Net government transactions	3,249	2,089	2,766	6,750	978
+ Direct Government payments	9,298	8,214	9,169	13,402	7,881
- Motor vehicle registration and licensing fees	362	341	361	367	316
- Property taxes	5,687	5,785	6,042	6,285	6,587
Gross value added	99,290	90,910	100,424	95,548	101,463
less: Capital consumption	18,259	18,234	18,289	18,366	18,470
Net value added	81,031	72,676	82,135	77,182	82,993
less: Employee compensation	12,519	12,331	12,291	13,235	13,507
Net operating surplus	68,513	60,346	69,844	63,948	69,486
less: Net rent received by nonoperator landlords	10,321	9,907	10,740	11,048	11,060
less: Real estate and nonreal estate interest	13,395	12,088	11,167	10,839	11,696
Net farm income	44,796	38,351	47,937	42,061	46,730

1/ Component statistics are drawn from the net farm income accounts and include income and expenses related to the farm operator dwellings. The concept is consistent with that employed by the Organization of Economic Cooperation and Development.

Table 2 -- Farm income indicators, 1990-94

Item	1990	1991	1992	1993	1994	Change 1993-94	
						Value Bil \$	Percent %
UNITED STATES							
	Million dollars						
Gross farm income	198,508.2	191,778.9	200,511.1	202,968.8	213,471.4	10.5	5.2
Gross cash income	186,981.7	184,250.1	188,602.1	199,622.3	196,704.1	(2.9)	(1.5)
Farm marketings	169,448.7	167,750.6	171,257.7	177,137.4	179,668.7	2.5	1.4
Crops	80,255.6	82,000.6	85,662.0	87,101.8	91,561.6	4.5	5.1
Livestock and products	89,193.1	85,750.0	85,595.7	90,035.5	88,107.1	(1.9)	(2.1)
Government payments	9,298.0	8,214.4	9,168.9	13,402.0	7,881.0	(5.5)	(41.2)
Farm-related income	8,234.9	8,285.1	8,175.5	9,083.0	9,154.4	0.1	0.8
Noncash income	8,045.0	7,735.8	7,753.5	7,858.4	8,101.7	0.2	3.1
Value of home consumption	706.0	619.8	589.5	519.4	482.2	(0.0)	(7.2)
Rental value of dwellings	7,339.0	7,116.0	7,164.0	7,339.0	7,619.6	0.3	3.8
Operator and other dwellings	6,829.0	6,564.2	6,673.7	6,906.9	7,177.8	0.3	3.9
Hired laborer dwellings	510.0	551.8	490.3	432.1	441.8	0.0	2.2
Value of inventory adjustment	3,481.5	-207.1	4,155.5	(4,511.9)	8,665.5		
Total production expenses	153,712.2	153,428.3	152,574.2	160,908.0	166,741.3	5.8	3.6
Intermediate product expenses	91,930.1	93,512.1	92,327.3	99,364.9	103,615.8	4.3	4.3
Farm origin	39,780.4	38,892.4	38,938.5	41,551.1	41,604.2	0.1	0.1
Feed purchased	20,387.4	19,330.7	20,131.8	21,433.7	22,633.2	1.2	5.6
Livestock and poultry	14,875.2	14,448.5	13,894.4	14,955.3	13,598.5	(1.4)	(9.1)
Seed purchased	4,517.8	5,113.3	4,912.3	5,162.1	5,372.5	0.2	4.1
Manufactured inputs	19,359.3	20,593.5	20,099.9	20,465.9	21,720.9	1.3	6.1
Fertilizer and lime	8,207.7	8,667.1	8,332.6	8,397.6	9,178.7	0.8	9.3
Pesticides	5,361.9	6,319.0	6,468.8	6,718.5	7,218.8	0.5	7.4
Fuel and oil	5,789.7	5,607.5	5,298.4	5,349.8	5,323.3	(0.0)	(0.5)
Other	32,790.4	34,026.1	33,288.9	37,347.8	40,290.7	2.9	7.9
Repair and maintenance	8,552.3	8,629.7	8,468.4	9,155.3	9,186.9	0.0	0.3
Other miscellaneous	24,238.1	25,396.5	24,820.5	28,192.5	31,103.7	2.9	10.3
Interest	13,395.5	12,087.7	11,167.2	10,838.6	11,695.8	0.9	7.9
Real estate	6,739.5	5,963.3	5,772.2	5,504.1	5,742.5	0.2	4.3
Nonreal estate	6,656.0	6,124.4	5,395.0	5,334.5	5,953.4	0.6	11.6
Contract and hired labor expenses	14,119.4	13,902.9	14,008.7	15,005.5	15,312.6	0.3	2.0
Net rent to nonoperator landlords	10,321.2	9,907.2	10,740.1	11,048.3	11,060.1	0.0	0.1
Capital consumption	18,258.8	18,233.8	18,288.6	18,366.2	18,470.3	0.1	0.6
Property taxes	5,687.2	5,784.6	6,042.3	6,284.6	6,586.8	0.3	4.8
NET FARM INCOME 3/	44,796.0	38,350.6	47,936.9	42,060.8	46,730.0	4.7	11.1
Gross receipts of farms	191,679.2	185,214.6	193,837.4	196,062.0	206,293.6	10.2	5.2
Farm production expenses	149,492.2	149,341.8	148,359.7	156,848.4	162,428.5	5.6	3.6
Nonfactor payments	112,305.6	114,043.9	112,994.7	120,488.4	124,955.9	4.5	3.7
Intermediate product expenses	90,963.0	92,535.7	91,483.8	98,609.0	102,632.6	4.0	4.1
Capital consumption	16,272.8	16,315.4	16,081.6	16,254.2	16,424.5	0.2	1.0
Property taxes	5,069.7	5,192.9	5,429.2	5,625.2	5,898.8	0.3	4.9
Factor payments	37,186.6	35,297.9	35,365.0	36,360.1	37,472.6	1.1	3.1
Interest	12,746.0	11,487.9	10,616.3	10,306.4	11,099.9	0.8	7.7
Contract and hired labor	14,119.4	13,902.9	14,008.7	15,005.5	15,312.6	0.3	2.0
Net rent to nonoperator	10,321.2	9,907.2	10,740.1	11,048.3	11,060.1	0.0	0.1
RETURNS TO OPERATORS	42,187.0	35,872.8	45,477.7	39,213.5	43,865.1	4.7	11.9
Gross cash income	186,981.7	184,250.1	188,602.1	199,622.3	196,704.1	(2.9)	(1.5)
Cash expenses	134,100.7	133,862.2	133,154.3	141,529.1	146,942.6	5.4	3.8
Cash expenses, excluding net rent	122,389.3	122,574.2	121,043.3	129,112.2	134,505.1	5.4	4.2
Intermediate product expenses	90,963.0	92,535.7	91,483.8	98,609.0	102,632.6	4.0	4.1
Interest	12,746.0	11,487.9	10,616.3	10,306.4	11,099.9	0.8	7.7
Cash labor expenses	13,610.5	13,357.7	13,514.0	14,571.6	14,873.8	0.3	2.1
Property taxes	5,069.7	5,192.9	5,429.2	5,625.2	5,898.8	0.3	4.9
Net rent to nonoperator landlords	11,711.4	11,288.0	12,111.0	12,417.0	12,437.5	0.0	0.2
NET CASH INCOME	52,881.0	50,387.9	55,447.8	58,093.2	49,761.5	(8.3)	(14.3)

1/ Value added to gross income. Net value added to net farm income equals difference in net farm income and returns to operators. 2/ Includes landlord capital consumption. 3/ Statistics in and above the Net Farm Income line represent the farm sector, defined as including farm operator's dwellings located on farms. Statistics below the Net Farm Income line represent only the farm business to the exclusion of the farmers dwellings. 4/ Returns to operators is equivalent to net farm income excluding the income and expenses associated with the farm operators' dwellings. 5/ Excludes landlord capital consumption.

Production Expenses Up 3.6 Percent

Production expenses in 1994 were \$166.7 billion, up \$5.8 billion from 1993. At 3.6 percent, this year's increase was less than the 5.5-percent growth registered between 1992 and 1993. After remaining nearly stable from the beginning of the decade through 1992, the increase in total production expenses in 1993 and 1994 combined was 9.3 percent.

The largest increase in any single expense item was a \$1.2-billion dollar rise in feed purchased. Higher feed expenses resulted from greater numbers of cattle, hogs, and poultry on feed; larger quantities of grain and concentrates being fed to milk cows; and higher prices for livestock feed for most of the year. The higher feed prices were due to reduced grain and oilseed harvests in 1993. ERS' estimates of both grain-consuming animal units and concentrates fed were up around 1.5 percent for calendar year 1994. Livestock feed prices recorded in January, April, and July of 1994 averaged 9.0 percent higher than for the previous year. During the first three quarters of 1994 feed manufacturers and livestock feeders were dependent upon the smaller 1993 harvest for basic ingredients. By October 1994, feed prices had fallen to 4 percent below the previous October, as the larger 1994 harvest expanded the supply of feed and concentrate inputs.

Expenditures for fertilizer increased \$781 million or 9.3 percent in 1994. Prices, rather than expanded quantities purchased, appear to be the major reason for the growth. Fertilizer prices rose steadily during the year. In each of the three quarters from October 1993 to July 1994, fertilizer prices increased 4 to 5 percent. In October 1994, prices stood 16 percent higher than a year earlier. Despite the increase in planted acreage in 1994, fertilizer sales were up only one-half percent in the first half of 1994 compared with the previous year. Two factors may have held down purchases: First, operators appear to have begun stocking up on fertilizer in 1993, anticipating higher nutrient prices and increased plantings in 1994. Second, estimates of quantities purchased during the second half of 1994 are much lower than in 1993. Despite favorable fall weather conditions, higher fertilizer prices and lower prospective plantings in 1995 likely reduced expenditures. The total quantity purchased in 1994 may prove to have been less than during 1993.

Pesticide expenditures rose \$500 million, up 7.4 percent from 1993. Pesticide prices rose 4.7 percent during the year. Estimated pesticide quantities applied were up 7.0 percent. Increased acreages of corn, cotton, and soybeans accounted for most of the increased pesticide use.

Seed purchases rose more than \$200 million, or 4.1 percent. However, the 1994 increase was smaller than the change between 1992 and 1993.

In response to the overall increase in production, expenses for marketing, storage, and transportation were up \$1.1 billion (19 percent). The largest percentage increase was in transportation expenses, which rose 27 percent (\$440 million). Total miscellaneous expenses were up \$1.5 billion (8 percent), reflecting increased expenditures for supplies used in production

(25 percent) and insurance premiums (13 percent), and smaller increases in other components.

Total interest payments on farm business loans were \$857 million higher in 1994 than in 1993, marking the first increase in interest expenses since 1982. Farm business debt has been rising since its low point in 1989, but lower interest rates have kept interest expenses from rising. In 1994, both debt and interest rates rose. The series of increases made by the Federal Reserve Board in the Federal Funds rate beginning in February were a principal factor increasing agricultural loan costs. However, the impact of the increasing interest rates on farmers was mitigated by a couple of factors. Many production loans were negotiated before the Board took actions to increase economy-wide interest rates and the rates charged on agricultural loans typically lag the changes exhibited in the economy as a whole.

Nonreal estate debt rose 4.8 percent, as operators took out more loans to finance increased production during the year. The average 1994 short-term rate for agricultural loans was estimated to be 8.91 percent, compared with 8.29 percent in 1993. The rising debt and higher rates produced a \$619-million (11.6-percent) increase in nonreal estate interest expenses. Real estate interest rose \$238 million (4.3 percent), as real estate debt increased 2.8 percent and average longer-term rates rose from an estimated 7.75 percent in 1993 to 7.97 in 1994. Average interest rates (sector wide interest paid divided by the outstanding loan value) should not be confused with the rates charged on new loans, which may be more reflective of the interest rate changes in the economy as a whole.

Costs for labor and property taxes also rose by at least \$300 million each. Both hired and contract labor expenses were up 2 percent in 1994. The number of hired workers times hours worked from the quarterly Farm Labor Survey was nearly unchanged from 1993. Average wage rates rose nearly 3 percent.

Property taxes, of which real estate taxes constitute nearly 90 percent, have been rising slowly but steadily since 1983, in response to appreciating land values. Taxes do not react immediately to changes in land values because they are also dependent on legislative actions and the timing of assessments. However, when a pattern of increases in land values emerges, real estate taxes will respond similarly over time.

Net rent to nonoperator landlords was virtually unchanged from 1993 despite an increase of 16.5 percent in share rent income. In fact, net rent prior to the addition of forest products receipts by nonoperator landowners was down around 1 percent. Offsetting the increase in share rent was a 40-percent drop in government payments received by landlords, which mirrored the decline in total government payments. Cash rents also fell around 5 percent. Expenses paid by landlords were up negligibly as declines in seeds, fertilizer, pesticides, and property taxes offset increases in other expenditures.

The most conspicuous decrease in production expenses was the \$1.4-billion or 9.1-percent drop in livestock and poultry purchased. Although production of cattle and calves increased in 1994, interstate sales, which constitute 80 percent of the

Table 3 --United States: Leading commodities for cash receipts, 1994

Rank	Item	Value of U. S. receipts	Percent of U.S. total	Cumulative percent 1/	Rank in prior Year
		1,000 dollars	----	----	----
	All commodities	179,668,692	100.0	--	--
	Livestock and products	88,107,122	49.0	--	--
	Crops	91,561,570	50.9	--	--
1	Cattle and calves	36,444,822	20.2	20.2	1
2	Dairy products	19,933,724	11.0	31.3	2
3	Corn	15,030,753	8.3	39.7	3
4	Soybean	13,404,012	7.4	47.2	4
5	Broilers	11,370,211	6.3	53.5	6
6	Greenhouse and nursery	10,043,984	5.5	59.1	7
7	Hogs	9,859,030	5.4	64.6	5
8	Wheat	7,794,349	4.3	68.9	8
9	Cotton	5,729,594	3.1	72.1	9
10	Chicken eggs	3,776,767	2.1	74.2	10
11	Hay	3,579,139	1.9	76.2	11
12	Turkeys	2,671,736	1.4	77.7	13
13	Tobacco	2,646,047	1.4	79.1	12
14	Potatoes	2,529,383	1.4	80.6	14
15	Grapes	1,853,759	1.0	81.6	15
16	Tomatoes	1,683,221	0.9	82.5	16
17	Rice	1,654,134	0.9	83.4	27
18	Oranges	1,580,428	0.8	84.3	17
19	Apples	1,321,169	0.7	85.1	19
20	Sugar beets	1,242,326	0.6	85.8	22
21	Peanuts	1,230,744	0.6	86.4	21
22	Sorghum grain	1,141,814	0.6	87.1	20
23	Lettuce	1,110,892	0.6	87.7	18
24	Almonds	894,250	0.5	88.2	24
25	Cane for sugar	882,272	0.4	88.7	25
	Government payments 2/	7,881,036	--	--	--

-- = Not applicable.

Numbers may not add due to rounding.

1/ The cumulative percentage is the sum of the percent of U.S. total for each commodity and all preceding commodities.

2/ Government payments made directly to farmers.

total expense, fell \$1.4 billion or 11.7 percent. The number of cattle and calves sold across State lines fell only 3 percent, which, combined with a slight increase in average liveweights, resulted in a 2.5-percent decrease in total liveweight. The average price received from intermediate sales declined over 9 percent, following the drop in prices received for finished cattle.

Commodity Highlights

Hog Production Changing The inventory of hogs on U.S. farms as of December 1, 1994, was the highest since 1980 and up 3 percent from 1993. Hog prices suffered an unusually large seasonal decline in the fall of 1994 as year-over-year gains in pork production widened. Farrowings were high throughout the year, causing a plunge in hog prices and heavy operating losses in the latter half of the year. A few States, led by North Carolina, continued to experience a rise in number of sows farrowed, even in the fall months.

The production of beef and poultry, which compete with pork for the consumers' food dollars, also registered substantial gains. Poultry production has risen continuously for nearly two decades. Rising supplies in the face of static demand kept livestock prices under pressure for most of the year. Lower feed prices in the last quarter of the year helped mitigate the effects of lower prices received by farmers. Reflecting these lower prices and the initial effects of the NAFTA trade agreement, pork exports to Mexico rose by 70 percent and those to Canada jumped by a third.

An increasing share of hog production is being done under contract for an integrator company, similar to broiler production. The advantages of contract production evolve from the contractual division of responsibilities between the integrator and grower. Typical contracting arrangements shift production risks (weather, disease epidemic) and price risks (both feed and hog prices) to the integrator. Because both parties enter the contract voluntarily, each must anticipate benefits.

The shifting of risks benefits growers by lessening the volatility of their incomes over time. Growers provide specialized facilities, labor, and management and are paid in accordance with their efficiency in converting feed into meat. Once the significant costs of buildings are covered, production under contract enables producers to earn income with relatively little investment of working capital. Because production generally occurs within confinement structures with automated environmental controls and feeding facilities, a continuous human presence is not required. A major attraction to growers is that they may not have to be on-site throughout the day, providing the opportunity to simultaneously earn income from alternative employment.

Typical contracts under which the integrator provides the feed and removes the animals from the farm make no mention of feed prices or animal prices; thus the grower is protected from price risks. Also, contracts frequently reward growers based on performance measures relative to other growers. This feature protects growers from production risks that affect everyone, such as a disease epidemic or adverse weather. The grower still bears the risks of operational problems, such as

malfunctioning of automated environmental controls and feeding equipment.

Integrators benefit from the assurance of a stable, controlled supply of animals possessing a specific set of attributes. In return for assuming much of the production and price risks, the integrator gets to set all standards as to breed of animal, feed content, weight and delivery schedule. This is a major benefit in marketing to the demanding consumer of the 1990's and in maintaining brand loyalty.

The changing economics of producing, processing, and marketing hogs are resulting in larger operations concentrated in a few States. Ongoing structural adjustments in the pork industry are leading to larger operations nationwide, but operations in a few States are growing far faster than the national average. Integrators locate feed and/or processing plants based on a much broader set of criteria than an independent hog producer would consider. Once the facility is constructed and becomes a fixed cost, the market price of live animals is but one of many determinants in the decision as to production levels. As a consequence, production under contract may not drop in response to temporary price declines due to large supplies. The brunt of the market forces leading to short-run adjustments equating supply and demand by means of a cost/price squeeze may fall upon independent producers.

The trend toward producing hogs under contract may explain the continued rise in national hog production in 1994 despite declining prices. Contractors with large investment in plants and facilities have other criteria to consider, causing them to maintain contracts to support the output of their existing plants and even add to contract production to supply new facilities coming on line as a consequence of investment decisions made several years earlier. The distribution of production among States may well change because of increased contract production.

Cattle Herd Expanding Cattle and calves rank first as a source of cash receipts for the U.S. farm sector, and the herd of beef-type cattle is expanding. The expansion is fueled by the profitability of cow-calf operations in recent years. Adequate forage supplies have supported herd growth. The number of cattle and calves on farms on December 31, 1994, was 103.3 million head, up 2 percent within the year and 8 percent larger than the cyclical low recorded 5 years earlier. The significance of this gain is that it is the largest in over a decade, indicating that beef production will continue to expand in the near term. The productivity of the cattle industry has increased, as advancements in cattle genetics have increased the desirable weight and associated quality of steers and heifers. Heavier dressed weights that previously were associated with over finished fat cattle are currently being achieved without the disproportionate gain in fat.

Field Crops Reach Record in 1994 In 1994, weather conditions were uniformly ideal for crop production nationwide. As a consequence, production of field crops not normally produced under irrigation were record large, even compared with 1992, when weather conditions had also been near perfect. Table 4 lists field crops for which 1994 value of production exceeded that of the previous 2 years by at least 10

Changes in Accounting Methods

Insurance payments received by farmers for losses incurred were previously deducted from premiums paid by farmers. These payments were not treated as income, but as a reimbursement of a portion of operating expenses and funds necessary to make the farmers' capital stock whole. The net balance of the premiums, which has always exceeded benefits received for the sector as a whole, was accounted for as a production expense. In future years, farmers will come under increasing pressure to substitute purchased insurance plans for Government programs in coping with production risks. Therefore, insurance payments received by farmers will take on additional importance in any evaluation of the farm sector's economic. Henceforth, insurance payments received by farmers will be included as a component of gross farm income under the "other farm-related income" category and total premiums paid will be included in expenses. Adjustments to the accounts will be made back to 1987. The adjustment will not affect net farm income.

Electricity was listed separately as a manufactured input prior to 1994, and other utilities were grouped under "other miscellaneous expenses". Because expenditures for electricity were collected in combination with all other utility expenses in the 1994 FCRS, a separation was not feasible. Beginning with tables published for 1994, all utilities, including electricity, are included under "other miscellaneous expenses". This change will have no effect on net farm income.

Revision to Forestry Sales

Sales of forest products from farmland are included in "other farm-related income". Data collected in some States combine sales of forest products on land owned by nonoperator landowners with sales on land owned by operators. Because net farm income should only include income accruing to operators, sales from land owned by nonoperator landowners will now be credited to them in the net rent account. (Net rent is rent paid to landlords less any expenses paid by landlords). For 1994, adjustments totaling \$1.9 billion were made in 18 States, with 3 States accounting for 62 percent of the total. Smaller revisions were implemented back to 1987. Sales of Christmas trees are included in cash receipts and are not affected by this change. This change does lower net farm income to operators but does not affect the sectors' value-added, as the income is shifted to the landlords' account.

Table 4 -- 1994 value of production high for many field crops.

	1992	1993	1994
....1,000 Dollars....			
Corn	19,723,258	16,031,861	22,157,932
Soybeans	12,167,564	11,949,633	13,785,353
Upland Cotton	4,081,657	4,366,534	6,254,975
Sunflowers	250,748	326,435	538,942
Dry Beans	457,269	539,531	628,448
Sweet	146,499	166,828	197,952

Source: Crop Values: 1994 Summary, (Pr 2-94)
USDA/NASS, January 1995

percent. As an indication of how pervasive were the ideal weather conditions, this list includes crops grown in both the northern and southern tiers of States and all those in between.

Cotton Producers Receive Higher Prices

Upland cotton producers not only accomplished record production in 1994, but many had the good fortune to sell their product at historically high prices. Producers continued to expand acreage, but the jump in production was mainly the product of high yields due to the favorable weather. The surge in farm prices for cotton was due to heated export demand, as several other producing countries experienced severe production problems. Cotton crops in China and Pakistan were devastated by insects. China experienced an infestation of the boll worm (a pest unrelated to the boll weevil) which has reduced yields so much that farmers may switch to alternative commodities. The leaf curl virus spread by swarms of whiteflies caused heavy damage to Pakistan's cotton crop, reducing production by a third in 2 years.

In the United States, farmers in the southeastern and Delta States have moved rapidly to expand production in recent years in order to take advantage of the rebound in profitability of a crop that for so long was the backbone of the region's economic history. The resurgence of yields attributable to the success of the boll weevil eradication program restored the profitability of upland cotton, while the recent rise in market prices has brought a degree of prosperity to producers not seen since the initial infestation of the boll weevil. The low levels of U.S. cotton stocks at the end 1994 bodes well for a continuation in the newly found profitability of upland cotton.

Producers of long staple cotton, grown on irrigated lands in the southwestern United States and California, are experiencing a continual decline in profitability. The cost of irrigation water is rising due to competition from other uses, particularly urban demands; land irrigated for decades is losing productivity; and the frequent natural disasters in recent years are raising the costs and uncertainties associated with production.

Figure 7-- Corn and soybean production up in 1994

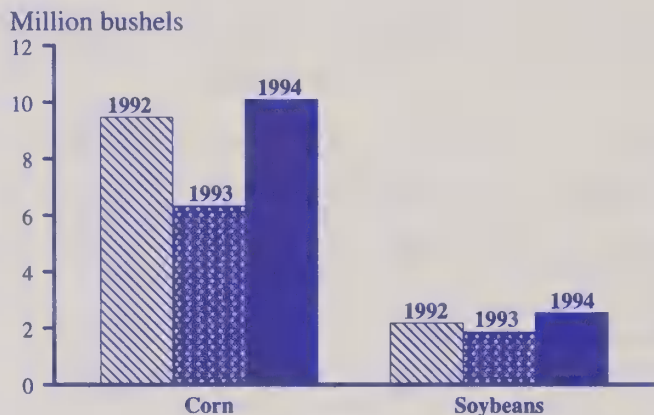


Figure 8 -- Beef and pork production rise, despite falling prices

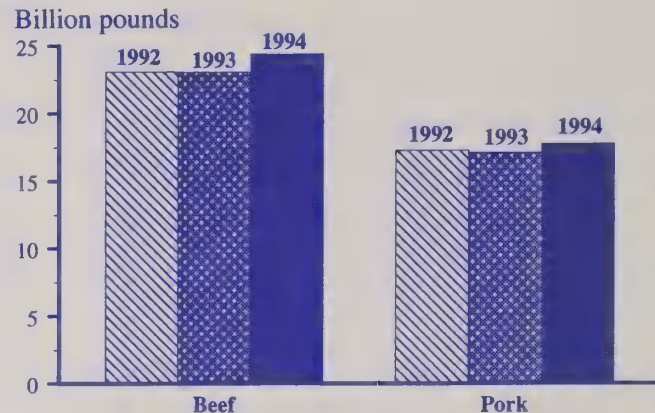


Figure 9 -- Monthly corn prices rise with poor 1993 harvest, fall with large 1994 crop

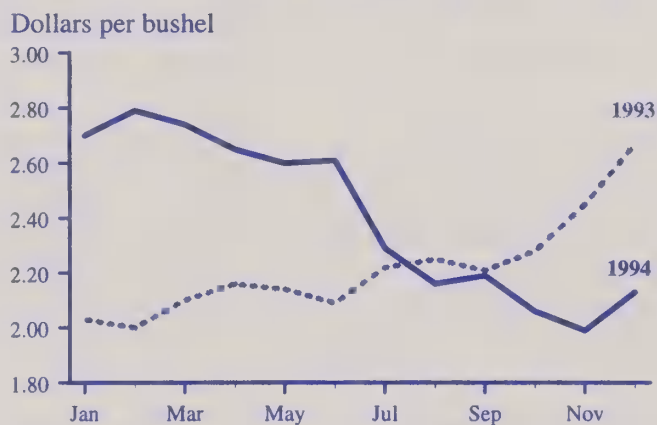


Figure 10-- Monthly soybean prices reflect small 1993 crop and large 1994 harvest

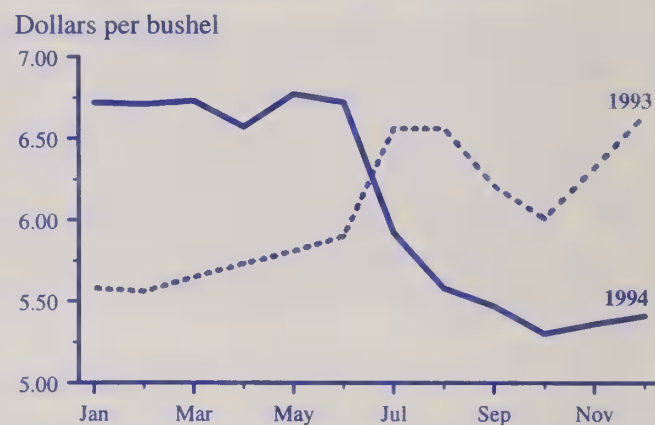


Figure 11 -- Monthly beef prices lower since early 1993

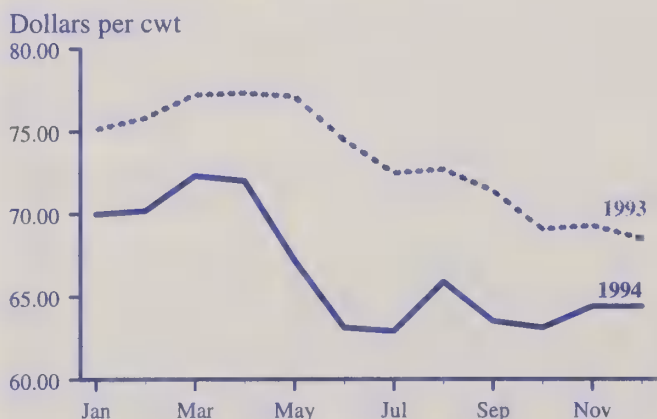
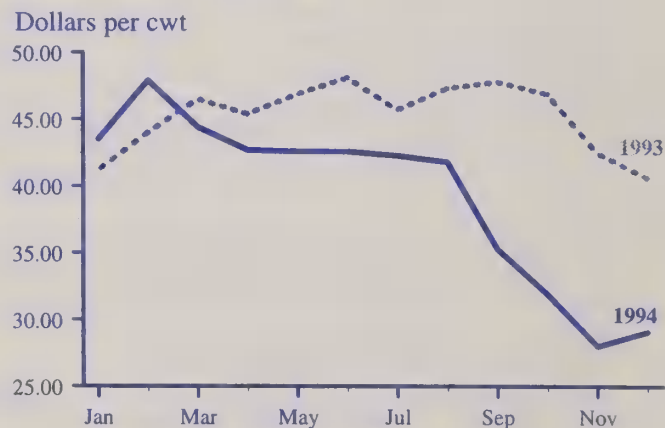


Figure 12 -- Monthly hog prices decline rapidly in late 1994



The boll weevil has never found the climate of the arid Southwest hospitable and has not been a problem in producing long staple cotton, which gave long staple cotton a competitive advantage for several decades between the onset of the infestation and eradication of boll weevils in the South.

Cropping Season Favorable for Expanded Vegetable Production

Weather in 1994 was favorable in most vegetable growing areas, enabling growers to realize higher yields and to expand their harvested acreage (up 6 percent from 1993 to 1994, following a 3 percent decline from 1992 to 1993). Increased vegetable production and marketings caused prices for most vegetables to decline. However, most growers saw their cash receipts rise because increased marketings more than offset lower prices.

In 1994, \$7.30 of each \$100 of agricultural cash receipts came from vegetables, up 60 cents from 1990. Among the large number of vegetables produced in the United States, potatoes and tomatoes account for the largest share of cash receipts. Potatoes accounted for \$1.39 of the \$7.30 in vegetable cash receipts, while tomatoes accounted for over \$1.00 (14 percent). Better than 40 percent of U.S. vegetable cash receipts was from vegetables grown in California and Florida. For these States, cash receipts from vegetables represent around 30 percent of cash receipts from all crops. Cash receipts from potato sales enable Washington and Idaho to follow Florida in importance as vegetable producing States. And for Idaho, cash receipts from potatoes constitute almost 20 percent of its total for all commodities.

Producers of green peppers, lettuce, sweet corn, watermelons, onions, and garlic have responded to the rising demand for these vegetables since 1990. For example, an ever growing number of prepared entrees and mixed vegetable offerings have green peppers added to them by food processors. Salad bars, which have become popular in today's restaurants and grocery stores, have contributed to the rise in demand for lettuce. Garlic, as a flavor enhancer and nutrition supplement, has become increasingly popular among consumers. In turn, marketings of dry beans, dry peas, cauliflower and chili peppers have declined the most during the nineties.

Greenhouse and Nursery Sales Rising Rapidly In 1994, greenhouse and nursery products reached the rank of number six among agricultural commodities, measured by their contribution to cash receipts. Sales of greenhouse and nursery products equaled \$10.0 billion in 1994, up 4 percent from 1993. Greenhouse and nursery production is one of the fastest growing commodity lines in agriculture and has risen steadily for more than three decades. U.S. greenhouse and nursery cash receipts have increased by 85 percent since 1985.

Flowers and plants are a luxury item and sales are linked to a country's GDP. Because the United States has a high per capita income and the world's largest GDP, it is the largest national market for cut flowers and plants. Floral industry analysts predict that spending by U.S. consumers may double over the next 5 years, rivaling the per capita expenditures by

European and Japanese consumers who currently are the leading buyers of cut flowers and greens.

The United States is also the largest market for outdoor landscaping flowers and plants, including trees, shrubs, ground covers, sod or turf grass, bedding, and garden plants. In response to this demand, U.S. agriculture is also the largest grower of these products. "Environmental horticulture" products represent more than 3.5 times the value of floral market crops in grower sales and more than double the value in retail sales.

In addition to homeowners, businesses and governments are buying more flowers, plants, trees, and shrubs to beautify parks, highways, office buildings, hotels, and restaurants contributing to the growth in greenhouse and nursery cash receipts. With the migration of business from the cities to suburban office parks and campus settings where land is relatively less expensive, outdoor landscaping is an attractive and economically feasible way to project a company image. U.S. companies, governments and homeowners are spending a great deal on lawn services and tree maintenance, exterior landscaping services and interiorscaping. With the build-up of landscaping and interiorscaping service industries, greenhouse and nursery farmers are encountering a reliable market.

The greenhouse and nursery industry is fulfilling consumers' present demands, as well as creating a demand for additional types of floral and horticultural produce which it will be prepared to supply. Product availability has sparked an increase in the consumption of greenhouse and nursery products. Industry diversification into annual and perennial crops offers a greater variety of choices to consumers, thus creating additional demand. Also helping to facilitate demand is improved availability stemming from advances in marketing capabilities, particularly storage and transportation facilities. Consumers can now readily purchase cut flowers, potted plants and decorative greens in a variety of convenient locations such as grocery stores and sidewalk vending stands.

Expansion of greenhouse and nursery product exports represents additional opportunities for growth in the industry. Since 1985 exports of these products have increased by 160 percent, from \$81.4 to \$211.6 million.

States in every region of the nation are expanding output of greenhouse and nursery products. In 1994, greenhouse and nursery cash receipts are listed as one of the top five commodities in agricultural sales in 25 of the 50 States. An additional 18 States list greenhouse and nursery as one of their top ten commodities measured in terms of cash receipts. Each of the 50 States list greenhouse and nursery cash receipts as one of their leading 20 commodities in agricultural cash receipts. Further, the three leading States in net farm income in 1994 — California, Texas and North Carolina — were also the leading States in greenhouse and nursery sales.

The 1993 USDA Farm Costs and Returns Survey indicated that floriculture and environmental horticulture enterprises had an average net farm income of \$22,433, more than twice the \$10,918 average for all U.S. farms.

Government Payments and Federal Farm Programs

Domestic farm programs continue to be important for farmers. The programs can be categorized into four major types: direct payments, marketing quotas, marketing orders, and import restrictions. Only payments made directly to farmers are explicitly included in the farm income accounts. Benefits to farmers from the other three types of programs are realized indirectly through higher prices received for commodities sold. Direct payments have generally been associated with legislation enacted to benefit producers of feed grains, food grains, and cotton, typically in combination with mandatory land diversion requirements to reduce the government's exposure to program costs.

For tobacco and peanuts, quotas have been the principal means to limit sales and raise prices. Producers of milk and selected fruits and vegetables have been empowered to use marketing orders to control sales by rationing the quantities available for specific uses. The strategy is typically that of raising prices for that segment of the market returning the highest income to producers, which is fluid milk in the case of dairy and fresh produce for fruit and vegetables. The balance of the production is then restricted to sales for processing and manufacturing uses. Import restrictions have been legislated for sugar and to a lesser extent for other farm commodities.

Government payments reflected in the farm income accounts represent direct, nonrecoverable transfer payments to producers participating in various programs. The primary objectives of farm commodity programs and conservation policies instituted through direct government payments are to support prices through restricting the supply of specific commodities (Acreage Reduction Program, etc.), support farm incomes directly through cash transfers to farm operators (deficiency payments, etc.), as well as support farm income in times of adverse weather or natural catastrophes (disaster payments), and maintain quality production and environmental controls through conservation reserve programs (Wetlands Reserve program, etc). The largest component of government payments is deficiency payments to producers of feed grains,

wheat, rice, and cotton. Farmers who voluntarily comply with acreage reductions and conservation requirements are eligible for deficiency payments.

Government payments were \$7.9 billion in 1994, down 41 percent from \$13.4 billion in 1993. However, it is important to understand that 1993 payments had risen 46 percent (\$4.2 billion) from the previous year, to the highest level since 1988. In 1993, farmers experienced adversity on three fronts. Crop prices fell sharply following the record harvests in 1992, making farmers eligible for substantial deficiency payments, a portion of which were paid in the first quarter of 1993. In the late spring and early summer farmers in the Midwest experienced disastrous losses in crops, facilities, and even soil from flooding along the Mississippi and its tributaries. Producers in the Southeast suffered significant losses through drought conditions. Farms suffering losses from natural disasters qualified for benefits from various government programs, which contributed to the rise in government payments in 1993.

Because accounting for government programs typically occurs on either fiscal or crop-marketing years, payments of deficiency and disaster benefits overlap two calendar years. Commodity program recipients vary in type and magnitude across States depending on the State's production specialty, environmental and conservational needs, as well as numbers of acres operated. The annual changes in the distribution of payments across States reflects changes in the overall farm sector and U.S. economic environment, crop yields, weather conditions, market prices, and any modifications in farm legislation.

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Farm Sector Debt Up \$4.7 Billion in 1994

Farm sector debt is rising, but current increases do not appear to threaten the farm financial situation.

Total farm business debt rose almost \$5.0 billion during 1994, reaching nearly \$147 billion, its highest since 1986. Farmers are operating in an environment where government support is likely to be reduced, where despite strong exports prices can still fall after bumper harvests, and where future interest rates are uncertain. Given this environment, it is reasonable to be concerned that indebted farm operators may have less income available to meet larger principal and interest payments on their loans. Or that, with higher interest rates, they may be faced with larger interest expenses relative to existing income levels. Some analysts are concerned that the rise in farm debt may burden the sector's ability to repay, and precipitate a return of financial stress witnessed in the mid-1980's.

Farmers' Creditworthiness Improved During '90s

Generally, lenders apply a range of measurable creditworthiness criteria in calculating any applicant's maximum loan eligibility, which can be viewed as that applicant's credit capacity. Farmer Mac, the secondary market for farm real estate mortgages, determined seven underwriting standards for loans qualifying for a mortgage pool. These standards define measures of a loan applicant's past and anticipated financial performance, as evidenced by prior and pro forma liquidity, solvency, profitability, and repayment capacity ratios.

An application of Farmer Mac standards to farm operators responding to USDA's 1989 Farm Costs and Returns Survey (FCRS) indicated that over 65 percent of all farm operator debt was eligible for Farmer Mac pooling under the debt/asset ratio standard (50 percent or less), but only 41 percent qualified under the debt coverage ratio standard (at least 1.25:1).

Preliminary results of current USDA research monitoring changes in credit quality indicate that, based on 1993 FCRS respondents, over 73 percent of farm operator debt met Farmer Mac's debt/asset ratio standard, and over 51 percent was eligible under the debt coverage ratio standard. Sampling design improvements in the FCRS between 1989 and 1993 mean the results are not directly comparable, but the results offer additional support of improved farm financial conditions over this period.

Traditional financial performance measures can be refashioned to estimate debt levels supportable by farm operator incomes. Estimates of commercial farm operator debt capacity and its use can be derived by applying a debt repayment capacity utilization model to USDA farm sector income and balance sheet account data for 1978-94. Development of this repayment capacity model has been reported in a previous issue of this publication. [See Ryan and Morehart, "Debt

1994 Farm Sector Asset Value Estimates Delayed

Only the debt side of the Farm Sector Balance Sheet is presented in this issue of Agricultural Income and Finance. Farm sector asset estimates were not available in time for this publication. The largest share, by far, of sector's asset value is attributable to farm real estate holdings. In the past, estimates of farm real estate value have been based upon the Agricultural Land Value Survey taken in February. The Agricultural Land Value Survey was discontinued in 1995. Land value questions have been added to the National Agricultural Statistics Service's June Agricultural survey. The intent of the new approach is to improve the quality of farm real estate value estimates by addressing the question in the more general survey which benefits from a larger sample size. The farm land data from the 1995 June survey will not become available until mid-September 1995, too late to be included in this issue. The *Farm Business Economics Report*, planned for early November, will include a complete farm sector balance sheet for 1994. The *Farm Business Economics Report* combines the information previously found in three separate publications, the *National Financial Summary*, *State Financial Summary* and the *Costs of Production—Major Field Crops & Livestock and Dairy*.

Repayment Capacity of Commercial Farm Operators: How Much Debt Can Farmers Afford," Agricultural Income and Finance, May 1992, AFO-45]

Debt Repayment Capacity Utilization Up in 1994, but Still Reasonable Compared to Early 1980's

The following analysis is limited to operators of commercial farms, those with sales greater than \$40,000 per year. Commercial farm operators' use of debt repayment capacity has varied over time. It has also varied considerably for different sizes of farms. Comparison of actual commercial farm operator total debt with a hypothetical maximum based on debt repayment capacity indicates the extent to which commercial farm operators have used their potential credit.

Use of debt repayment capacity rose from 57 percent in 1978 to almost 89 percent in 1981. This ratio generally declined between 1981 and 1987, as income levels and more favorable interest rates supported a potential \$36 billion in additional

debt, but actual debt outstanding increased only \$12 billion. The utilization ratio declined to less than 41 percent by 1987 and continued a downward trend to less than 35 percent in 1992. By 1994 it had risen again to almost 41 percent. While this measure indicates a recent increase in use of total commercial farm operator debt repayment capacity, it remains favorable compared to the values reported in 1978-86.

Based solely on debt repayment capacity, the late 1980's appear to have been a period of relative aggregate prosperity for commercial farm operators, who could have supported almost \$248 billion in debt in 1987, up from less than \$147 billion in 1981. Actual debt, though increasing through 1984, had dropped by over \$29 billion from 1981 to 1987.

Analyzing the use of debt repayment capacity by size of farm indicates that, although commercial farms as a whole generally have appeared to have generated sufficient income to service debt, many operators of smaller farms may have carried debt in excess of their repayment ability. Farms in the largest sales classes (sales over \$250,000) maintained debt levels within their ability to repay throughout the period, but those in the smallest commercial farm sales class (sales of \$40,000-\$99,999) appear to have been borrowing in excess of repayment ability nearly continuously from 1980 through 1984. This excess use of credit peaked in 1981, when farms in the smaller sales class carried almost 36 percent more debt than their income for debt repayment would have supported. Farms with sales between \$100,000 and \$250,000 used almost 88 percent of their capacity during 1980-84.

While commercial farmers in general do not appear to have borrowed in excess of their debt repayment capacity during most of 1970-90, these results support the view that smaller commercial farm units were not able to generate sufficient cash to cover debt repayment obligations for much of the early 1980's. Accumulated deficiencies later placed an unsustainable financial drain on these smaller units. This finding is consistent with the view that smaller family farm operations bore the brunt of the financial crisis of the 1980's.

The recent rise in debt, relatively low harvest prices, and rising interest rates were the basis of the rise in utilization of debt repayment capacity across all commercial farm size classes in 1994. Farmers' borrowings increased while net cash income available for debt service was reduced. This is especially true of the smallest size group, where utilization has risen from less than 50 percent in 1991 to over 65 percent in 1994. However, this growth in farm borrowings does not appear to be placing an unmanageable burden on the sector's ability to repay. While these results do not indicate that widespread financial stress is imminent in the farm sector, USDA will continue to monitor debt repayment capacity utilization as a leading indicator of future farm financial conditions.

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Table 5 --Measures of actual debt and debt repayment capacity and utilization, commercial farm operators, by size of farm, 1978-1994

Year	\$500,000 and over	Value of sales			Total
		\$250,000 to \$499,999	\$100,000 to \$249,999	\$40,000 to \$99,999	
Million dollars					
Commercial farm operator debt					
1978	18,110	18,850	21,182	27,108	85,250
1979	23,583	23,856	26,519	29,566	103,524
1980	28,681	27,757	29,888	30,320	116,647
1981	32,832	32,264	33,703	31,207	130,006
1982	37,309	22,637	44,170	31,797	135,912
1983	30,168	24,240	48,289	32,920	135,617
1984	39,896	27,687	44,037	30,612	142,231
1985	30,713	27,672	41,409	27,814	127,608
1986	27,683	24,383	36,193	22,724	110,983
1987	23,718	20,610	33,977	22,251	100,555
1988	22,818	17,404	32,400	22,458	95,080
1989	24,642	18,695	29,439	20,793	93,569
1990	27,132	16,083	28,747	21,776	93,737
1991	27,596	16,361	29,361	22,227	95,546
1992	26,931	16,097	29,977	22,211	95,215
1993	28,786	16,863	30,562	20,553	96,764
1994	29,369	17,393	31,551	23,086	101,399
Debt repayment capacity					
1978	46,375	29,956	33,242	39,564	149,136
1979	50,923	34,880	35,731	35,348	156,882
1980	49,485	35,380	35,494	31,564	151,924
1981	51,225	37,041	33,622	24,994	146,882
1982	59,278	29,525	49,663	30,905	169,370
1983	54,439	36,039	60,938	34,708	186,124
1984	66,051	37,296	51,534	28,324	183,205
1985	64,736	45,346	63,444	37,712	211,237
1986	73,581	41,542	63,007	36,591	214,721
1987	90,345	42,750	72,631	42,144	247,869
1988	84,245	41,935	70,648	39,423	236,250
1989	96,613	38,933	56,121	33,490	225,157
1990	105,585	40,085	60,025	31,727	237,423
1991	81,913	44,147	62,496	44,545	233,102
1992	116,442	46,741	70,432	42,851	276,465
1993	123,102	40,714	62,091	36,199	262,107
1994	116,611	38,565	59,063	35,033	249,272
Debt repayment capacity utilization in percent					
1978	39.05	62.94	63.72	68.52	57.16
1979	46.31	68.40	74.22	83.64	65.99
1980	57.96	78.45	84.21	96.06	76.78
1981	64.09	87.10	100.24	124.86	88.51
1982	62.94	76.67	88.94	102.89	80.25
1983	55.42	67.26	79.24	94.85	72.86
1984	60.40	74.25	85.45	108.08	77.63
1985	47.44	61.03	65.27	73.76	60.41
1986	37.62	58.70	57.44	62.10	51.69
1987	26.25	48.21	46.86	52.80	40.57
1988	27.09	41.50	45.86	56.97	40.25
1989	25.51	48.03	52.46	62.09	41.56
1990	25.70	40.12	47.89	68.63	39.48
1991	33.69	37.06	46.89	49.90	40.99
1992	23.13	34.44	42.56	51.83	34.44
1993	23.38	41.42	49.22	56.78	36.92
1994	25.19	45.11	53.52	65.10	40.68

Table 6 -- Debt repayment capacity and annual and cumulative changes in actual debt and debt repayment capacity, commercial farm operators, 1971-94

Year	Debt repayment capacity utilization	Debt repayment capacity		Actual Debt		Excess debt capacity	
		Annual change	Cumulative change	Annual change	Cumulative change	Annual difference	Cumulative difference
	Percent	----- Million dollars -----					
1971	30.73	(398)	(398)	3,076	3,076	3,475	3,475
1972	29.09	22,138	21,740	5,165	8,241	16,973	13,498
1973	26.34	53,020	74,760	11,210	19,452	41,810	55,308
1974	31.10	4,116	70,645	5,997	25,449	10,112	45,196
1975	40.54	19,638	51,006	6,100	31,549	25,739	19,457
1976	45.75	3,796	54,802	8,469	40,018	4,673	14,785
1977	54.81	5,169	49,633	9,230	49,248	14,399	385
1978	57.16	21,242	70,875	15,149	64,396	6,093	6,478
1979	65.99	7,746	78,621	18,274	82,670	(10,528)	4,050
1980	76.78	4,958	73,663	13,123	95,793	18,081	22,131
1981	88.51	5,042	68,621	13,359	109,152	18,400	40,531
1982	80.25	22,488	91,109	5,906	115,058	16,582	23,949
1983	72.86	16,753	107,863	(296)	114,763	17,049	6,900
1984	77.63	2,918	104,944	6,614	121,377	9,533	16,433
1985	60.41	28,032	132,976	14,623	106,754	42,655	26,222
1986	51.69	3,484	136,460	16,625	90,129	20,110	46,331
1987	40.57	33,148	169,608	10,427	79,702	43,575	89,906
1988	40.25	(11,619)	157,989	5,476	74,226	6,143	83,763
1989	41.56	11,093	146,896	1,511	72,715	9,583	74,180
1990	39.48	12,266	159,162	168	72,883	12,098	86,278
1991	40.99	4,321	154,841	1,808	74,692	6,129	80,149
1992	34.44	43,364	198,204	(330)	74,361	43,694	123,843
1993	36.92	14,359	183,846	1,549	75,910	15,908	107,935
1994	40.68	12,834	171,011	4,635	80,545	17,469	90,466

Figure 13 -- Farm business debt rising ... but still below early 1980's

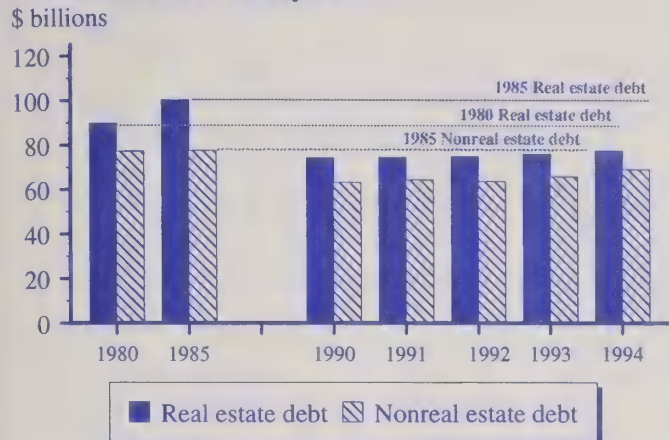


Figure 14 -- Banks' share of farm business credit increasing, Farm Credit System's share has declined

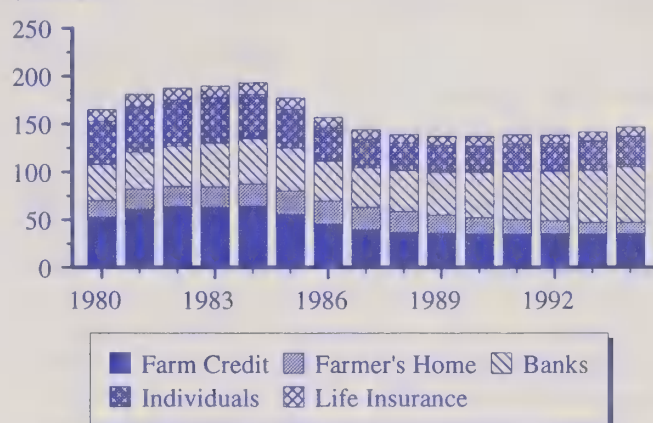


Figure 15 -- Interest expenses rising in 1994, but below the early 80's

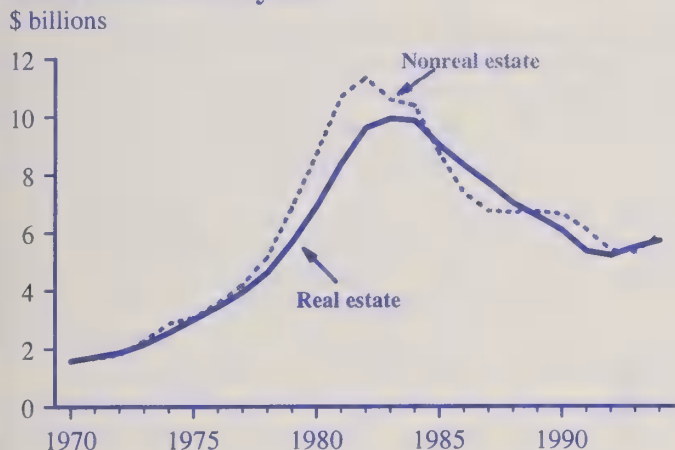


Figure 16 - Early 80's debt approached repayment capacity, but unused capacity expanded since 1984

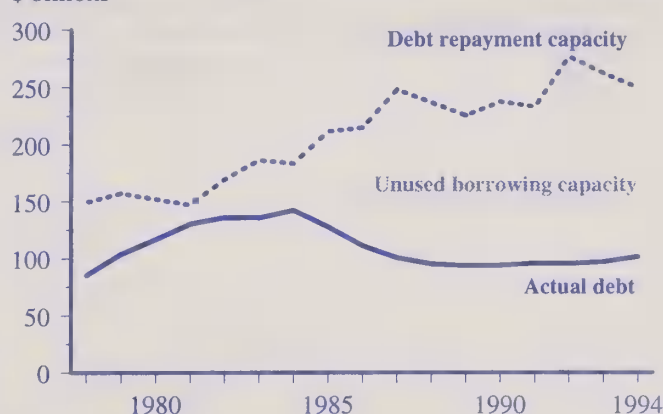


Figure 17 -- During 1979-84 farm debt grew faster than repayment capacity

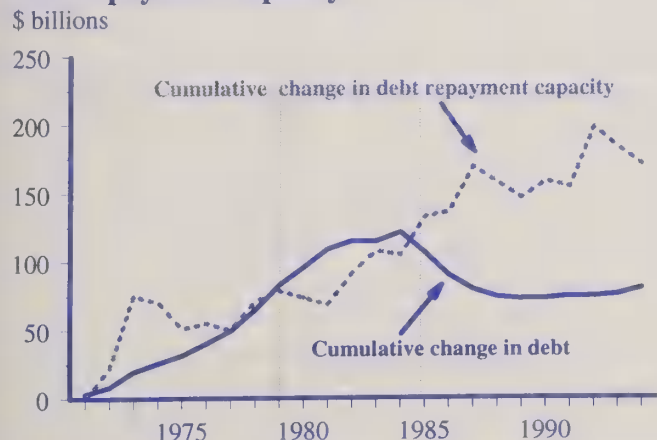


Figure 18 -- Debt repayment capacity utilization high for small and medium size farms, lower for large farms

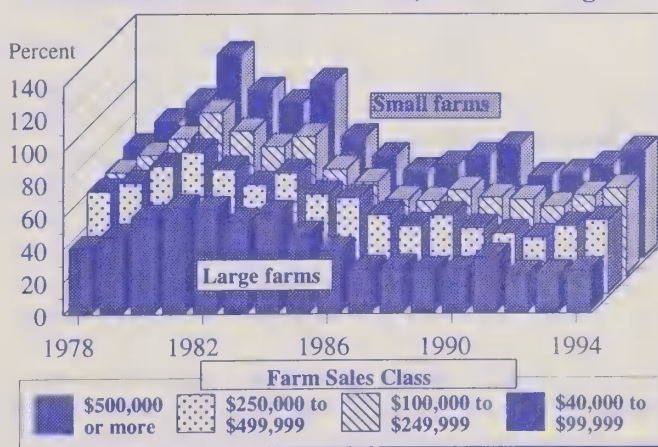


Table 7 – Total farm debt increased by almost \$5 billion in 1994, but is \$47 billion below 1984.

Lender	1984	1986	1989	1993	1994	1995F
	-----Million dollars-----					Billion dollars
Real estate	106,697	90,408	75,351	75,977	78,092	76 to 80
Farm Credit System	46,596	35,593	26,674	24,872	24,726	24 to 26
Farmers Home Administration	9,525	9,713	8,130	5,834	5,494	4 to 6
Life insurance companies	11,891	10,377	9,045	8,980	9,072	8 to 10
Commercial banks	9,626	11,942	15,551	19,580	21,190	22 to 24
CCC storage facility	623	123	12	0	0	0
Individuals & others	28,438	22,660	15,939	16,711	17,610	17 to 19
Nonreal estate	87,091	66,563	61,881	65,927	69,120	71 to 75
Commercial banks	37,619	29,678	29,243	34,939	36,730	38 to 40
Farm Credit System	18,092	10,317	9,544	10,540	11,180	10 to 12
Farmers Home Administration	13,740	14,425	10,843	6,239	6,020	5 to 6
Individuals & others	17,640	12,143	12,250	14,210	15,190	15 to 17
Total debt	193,788	156,971	137,231	141,905	147,212	149 to 155
Farm Credit System	64,688	45,910	36,218	35,412	35,907	35 to 38
Farmers Home Administration	23,263	24,138	18,974	12,073	11,513	10 to 12
Commercial banks	47,245	41,620	44,795	54,519	57,920	60 to 64
Life insurance companies	11,891	10,377	9,045	8,980	9,072	8 to 10
Individuals & others	46,701	34,926	28,201	30,921	32,800	32 to 35

Farm business debt outstanding as of December 31.

Costs of Crop Production in 1994 Continue Upward Trend

Input prices rose in 1994, pushing up U.S. crop and milk production costs. Costs fell, however, for hog and cow-calf production.

Prices paid for production inputs in 1994 rose an average 2.9 percent from 1993. There was, of course, a sizeable range among individual inputs. The greatest price increase was for fertilizer, 9.6 percent. The mix of fertilizers that makes up the fertilizer component of the index is heavily weighted toward nitrogen, so those crops that are most dependent on nitrogen fertilizer were most affected by the price increase. Cash rents rose an average 8 percent and machinery prices were up 3-6 percent.

Livestock operations were most affected by an average 6-percent rise in feed prices. Corn makes up over 18 percent of the feed index and dairy feeds make up nearly 17 percent. The rise in feed prices is primarily due to high prices in the first three quarters of 1994 following the drought- and flood-ravaged crops of 1993.

Fuel prices fell 8.4 percent. The more mechanically-intensive crops and livestock operations benefited from this. Products derived from oil, like pesticides and herbicides, however, did not see an accompanying price drop.

Overall costs of production for major U.S. crops and milk rose along with input prices, but costs for cow-calf and hog production fell (appendix tables 13-20). Besides the price effect, crop yields recovered from the low, weather-affected levels of 1993, pushing up costs. Higher costs with higher yields occur when, as in the case of corn, the higher production per acre requires more field work at harvest, and therefore more machinery use and greater fuel use. From the income perspective, net cash returns tended to rise for crops and fall for livestock and dairy in 1994.

1994 Cost Highlights by Commodity

Corn — Recovering from flood conditions along the Mississippi River and drought conditions in the Southeast during 1993, the average corn yield per planted acre was 44 percent higher in 1994. Corn production in 1994 was at a record high, 59 percent above the 1993 crop, and 7 percent above the previous record in 1992. Higher yields offset lower corn prices and raised the gross value of corn production by 31 percent. The total cash cost per acre of corn was 11 percent higher in 1994 than in 1993, while the economic cost was 12 percent higher. However, higher yields reduced the per-bushel cash cost from \$1.79 to \$1.38, and the per-bushel economic cost from \$2.89 to \$2.24. Lower corn prices also raised the per-acre deficiency payment by more than 90 percent from 1993 to 1994. Overall, government program participation enhanced returns to corn production to a much larger extent in 1994 than in 1993, with the per acre residual return to management and risk improving from -\$49.10 in 1993 to \$0.42 in 1994.

Grain sorghum — Average U.S. grain sorghum yields rose from 54 bushels per planted acre in 1993 to 61 bushels in 1994. Gross value of production (excluding direct government payments) was well above cash expenses, but longrun residual returns to management and risk remained negative. Nearly three-fourths of planted sorghum acres were enrolled in the Federal feed grain program in 1994. The cost of maintaining set-aside acres was slightly lower than value obtained from payments, haying, and grazing.

Oats — Cash costs for producing oats rose 4.4 percent in 1994. Of variable cash expenses, only those for hired labor fell. Fixed cash expenses rose only slightly. Total economic costs also rose, but by less than \$1 per acre. Despite such modest cost increases, returns to management and risk fell by \$11.50 per acre, or nearly 20 percent. Returns fell because yields rose less than the accompanying fall in price, resulting in a drop in the value of production. The value of oat straw, a very important and valuable byproduct, also fell. Reduced receipts and higher costs caused the dramatic drop in net returns.

Barley — In 1994, U.S. farmers planted barley on 7.16 million acres and produced 375 million bushels. Area planted and production were 6-8 percent below 1993. However, harvested acreage declined only slightly to 6.6 million acres, about 1 percent below 1993. Lower production in the western States was offset by increased production in the Southeast and upper Midwest. Total 1994 economic costs among barley growers averaged \$170.65 per planted acre, up 6 percent. Variable costs increased 4 percent due to higher input prices. The average price, \$2.07 per bushel received at harvest, covered all cash costs, but covered only about two-thirds of the longrun cost of producing a bushel of barley.

Wheat — Acres planted to wheat fell about 2.5 percent in 1994, while the national average price at harvest rose 6.4 percent and average yield fell almost 2 percent. Thus, gross value of production per acre rose 4.5 percent.

Production costs changed little in 1994. Total cash expenses rose less than 2 percent, while economic costs rose just over 2 percent. The lower yield and increased variable costs pushed variable costs per bushel up 3 percent to \$1.68 per bushel. The increase in gross value of production more than covered the increased expenses, so that residual returns to management and risk, though still decidedly negative (-\$51.53 per acre), improved slightly.

These national averages mask a dramatic rise in durum production during 1994, because durum is such a small share of total wheat production. In 1994, acres planted to durum

increased 30 percent, while the price rose 27.5 percent and yield was up 8.5 percent. As a result, durum's share of total wheat increased from 3 percent in 1993 to 6 percent in 1994.

Rice — Record rice yields and higher prices in 1994 boosted the market value of rice per planted acre by 25 percent over 1993. Cost of production, particularly cash expenses for seed and the economic charges for land, also increased. Even though the change in market value exceeded the change in costs, and net cash returns (excluding government payments) improved by over \$50 per acre, total net cash returns remained negative. Government payments to rice producers dropped significantly in 1994, as higher prices reduced deficiency payments and proceeds from marketing loans. The reduced government payments and increase in economic costs more than offset the higher market value per acre of planted rice, resulting in lower returns.

Sugar beets — U.S. sugar beet farmers planted 1.47 million acres to the crop and produced 32.0 million tons, 22 percent above 1993's production. Harvested acres totaled 1.44 million compared with 1.41 the previous year. Planting for the 1994 beet crop started early, with adverse weather conditions resulting in some replanting. Beet yields on average increased from 18.56 tons per planted acre in 1993 to 21.95 in 1994. Total cash costs of producing 1994 U.S. sugar beets averaged \$552.12 per planted acre, a 1.2-percent rise. Total variable costs rose to \$421.49 per acre, 2.6 percent above 1993. All variable cost items increased with the exception of fuel. On a per-ton basis, total cash costs were \$25.15, down 14 percent from 1993. This is due to favorable harvest weather and a late killing frost that extended the growing season and increased yields.

The beet prices used for estimating the 1994 gross value of production and the share-rent component of the land costs have been held at their 1993 level. If beet prices are higher than in 1993, the value of the beet crop as well as the cost of land will rise. Note that 1992 sugar beet and sugarcane production costs and returns published in earlier years are revised (see the special article in this issue).

Sugarcane — Sugarcane, like sugar beets, costs of production were revised for the 1992 base year to bring them into conformance with standard USDA methodology (see special article in this report). These revisions raised 1992 total economic costs by \$42.59 per planted acre over previously published estimates. With the new base year, 1994 total economic cost estimates are up 1.7 percent from 1993 at the national level. The increase is less than the cash expense increase of 3.8 percent due to an estimated decrease in land costs of 14.5 percent. Land costs are down due to cash rents falling considerably in Florida, which accounts for nearly half of all U.S. sugarcane acreage. As with beets, 1994 sugarcane prices are not yet available so 1994 prices in these estimates have been kept at 1993's levels. Costs for most variable production inputs rose 3-8 percent, although fuel costs and hauling allowances fell. Interest expenses were also down, due in large part to rising interest rates that caused farmers to borrow less.

Soybeans — Soybean production in 1994 was record high, up 37 percent from 1993. Improved growing conditions in 1994 pushed the average yield 36 percent above 1993. Higher yields increased the gross value of soybean production by 18 percent, despite lower soybean prices. The total economic cost per acre of soybean production was 7 percent higher in 1994 than in 1993, while the per-acre cash cost was 5 percent higher. Both cash and economic costs were influenced by the greater value of soybean production, which raised the allocation of fixed cash costs to soybeans, and increased the share rent component of land cost. However, per-bushel costs were much lower in 1994 due to improved yields. The per-bushel cash cost declined from \$3.70 to \$2.87 and the per-bushel economic cost declined from \$6.71 to \$5.29.

Peanuts — The average U.S. peanut yield rose 36 percent in 1994 over 1993's drought-stressed output. Chemical expenses fell off slightly, but higher input prices and additional cost associated with higher yields pushed up expenses for most other inputs. Gross value of production was well above cash costs in both years. Residual returns to management and risk were also positive in 1994, after exhibiting a large loss in 1993.

Cotton — A 22-percent increase in U.S. production and an 8-percent rise in prices boosted returns from cotton from 1993 to 1994. Average cotton yields increased 17 percent after declining for 2 years. Total variable cash expenses increased by about 2 percent from 1993 to 1994. Fuel expenses declined by \$1.97 per acre. Total fixed cash expenses increased by almost 8 percent due to the higher value of cotton, which affects the allocation of fixed costs, and higher interest rates. Total economic costs increased from \$441.02 per acre in 1993 to \$464.26 in 1994. Capital replacement increased by \$2.32 per acre, and land costs increased from \$38.03 in 1993 to \$47.45 in 1994.

When the direct effects of government programs for cotton are included in the estimates, gross returns, production costs, and net returns are all higher.

Flue-cured tobacco — The average variable costs of producing an acre of flue-cured tobacco increased 5 percent between 1993 and 1994, from \$1,789 to \$1,885. Most cost components increased. However, energy-related costs declined \$31. Machinery and barn-ownership costs increased almost 4 percent to \$523 per acre and caused capital replacement costs to rise from \$281 in 1993 to \$290 in 1994. Land and quota charges increased from \$893 per acre in 1993 to \$977 because yields and market prices were higher.

Burley tobacco — Variable costs of producing and selling burley tobacco increased from \$2,314 per acre in 1993 to \$2,446 in 1994, with selling costs accounting for most of the increase. While fuel and lubrication and curing and heating fuel costs fell, the decline was only about 2 percent. Selling costs and assessments (marketing fees, no-net-cost and marketing assessments, and inspection and grading fees) increased from \$237 in 1993 to \$347 in 1994, which constituted about 83 percent of the year's difference in total variable costs. Total costs per acre, excluding land and quota costs, increased almost 6 percent to \$3,379.32 per acre. An increase in burley

tobacco placed under the loan program raised loan stocks, thereby increasing the risk of losses in operating the price support program. Consequently, no-net cost assessments to assure that the program operates without cost to the taxpayers were raised.

Milk — Cash and economic costs of producing U.S. milk in 1994 were up 4 and 5 percent, respectively, from 1993. Much of the increase in costs was due to higher feed concentrate prices. Weather problems in major feed-producing States in 1993 led to considerably lower yields. As a consequence, milk producers paid a higher price for available supplies of concentrates during much of 1994. Consequently, the 1-percent increase in the total gross value of production from 1993 to 1994 was not enough to improve residual returns to management and risk. Residual returns declined from a negative \$1.43 per hundredweight of milk sold in 1993, to a negative \$1.99 in 1994.

Cow-calf — Production costs for cow-calf operations showed little change for 1994. Variable expenses were up by just over \$1 per cow as a minimal rise in feed costs was nearly offset by lower energy costs. Fixed expenses fell by just over \$4 resulting in a \$3 drop in total cash expenses. Adding in noncash expenses caused total economic costs to rise, but by only \$6 per cow. However, cattle and calf prices were down nearly 10 percent, resulting in falling net returns.

Hogs — Despite higher feedgrain prices during much of 1994, the average cash cost of U.S. hog production was down 5 percent from 1993. Cash costs were reduced because lower hog prices in 1994 reduced the allocation of fixed cash costs to hogs. Market hog prices were in the mid- to upper \$40 per cwt in 1993, but most often in the low \$40's during 1994 and fell into the \$30's and below as the year ended. Likewise, feeder pig prices averaged about \$20 per cwt lower in 1994 than in 1993. The total economic cost of hog production changed little from 1993 to 1994. However, lower hog and pig prices reduced the value of production and resulted in reduced returns for all of hog producers.

Sugarcane, — Bob McElroy (202) 219-0802
Barley, sugar beets — Mir Ali (202) 219-0374
Sorghum, peanuts — Nora Brooks (202) 219-0384
Rice — Janet Livezey (202) 501-8312
Cotton, tobacco — Dargan Glaze (202) 501-8307
Corn, soybeans, hogs — Bill McBride (202) 501-8309
Dairy — Sara Short (202) 501-8315
Cow-calf, oats — John Jenkins (202) 219-0798
Wheat — Judy Sommer (202) 501-8313

1994 cash production costs rise for U.S. crops and milk, fall for hogs and cow-calf

Figure 19 -- Feed grain production costs

Dollars per planted acre

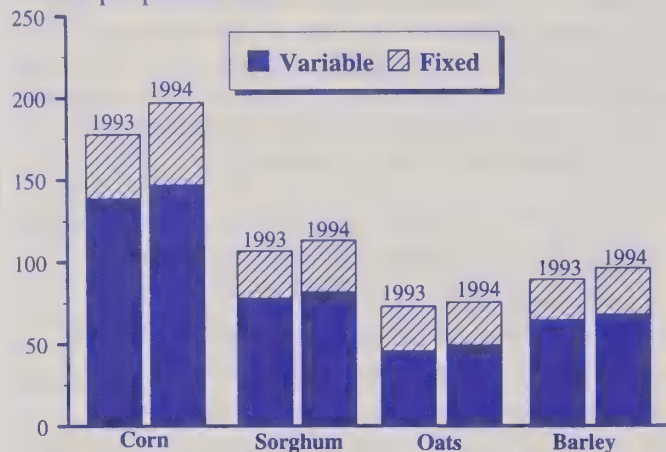


Figure 20 -- Food grain and sugar crop production costs

Dollars per planted acre

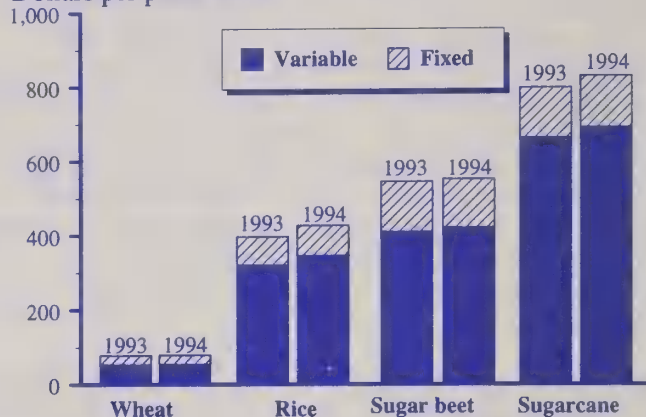


Figure 21 -- Oilseed and cotton production costs

Dollars per planted acre

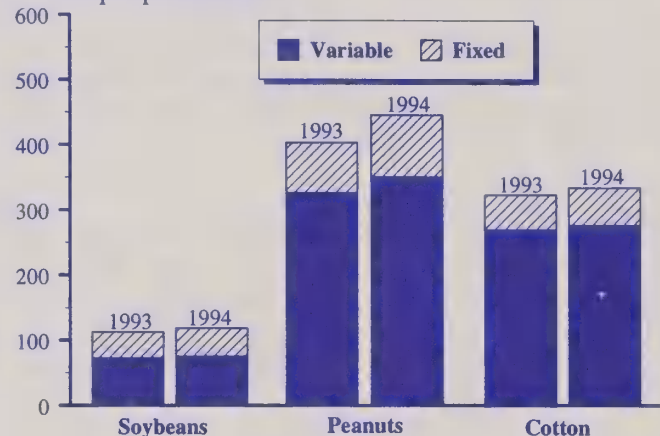


Figure 22 -- Hog production costs

Dollars per cwt gain

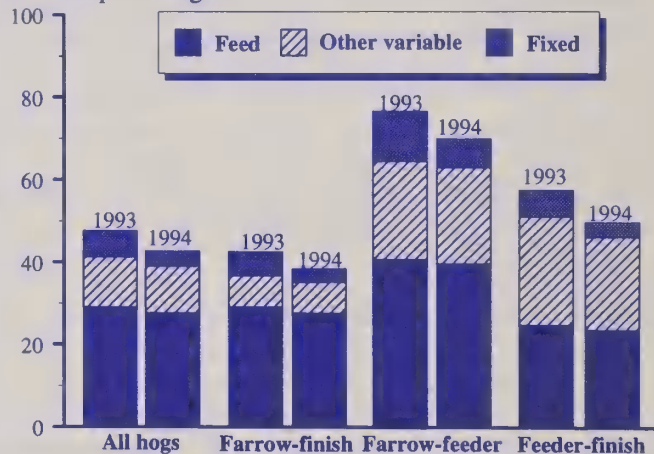


Figure 23 -- Cow-calf production costs

Dollars per bred cow

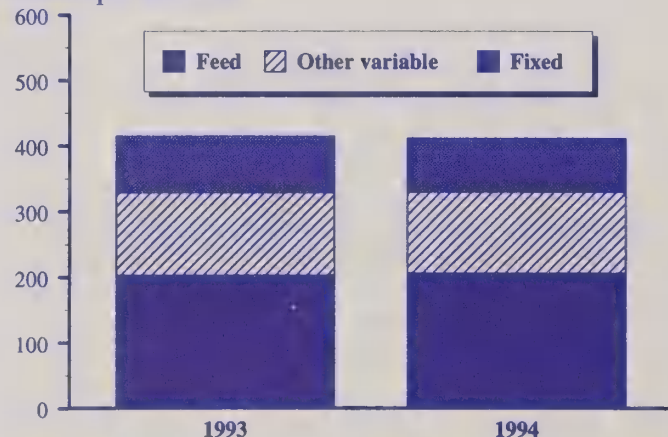
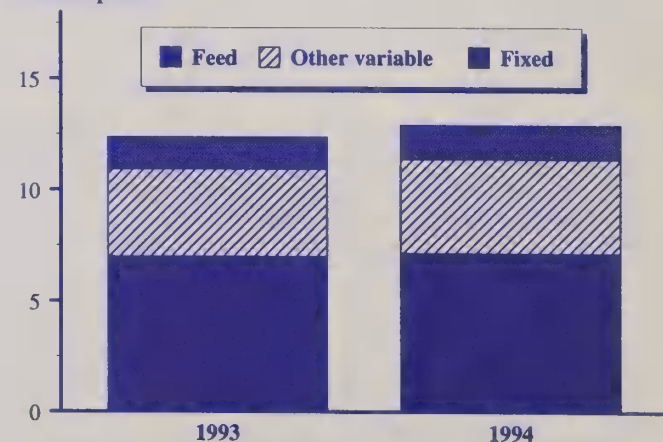


Figure 24 -- Milk production costs

Dollars per cwt



1994 cash returns up for most major U.S. crops, but down for livestock and milk

Figure 25 -- Feed grain returns

Dollars per planted acre

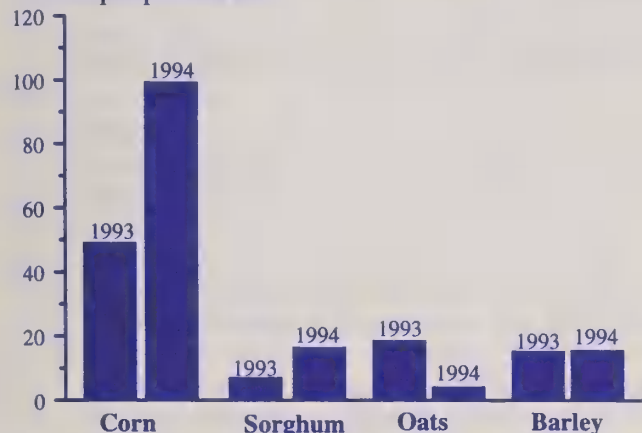
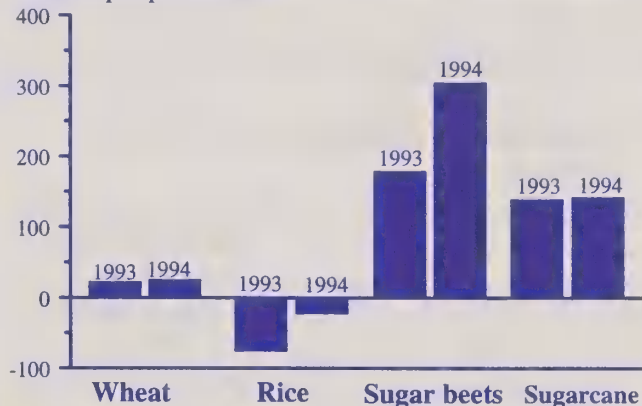


Figure 26 -- Food grain and sugar crop returns

Dollars per planted acre



Note: 1994 prices for sugar have been kept at the 1993 level.
Sugarcane returns are per harvested acre.

Figure 27 -- Oilseed and cotton returns

Dollars per planted acre

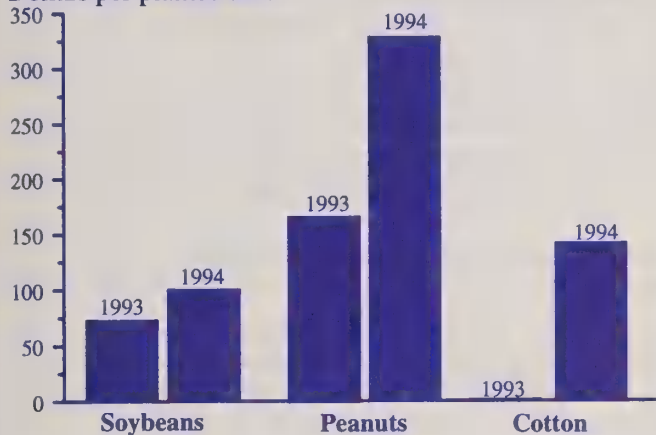


Figure 28 -- Hog returns

Dollars per cwt gain

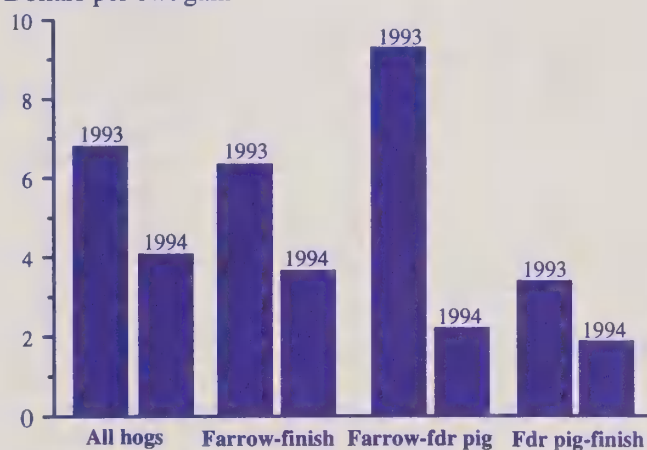


Figure 29 -- Cow-calf returns

Dollars per bred cow

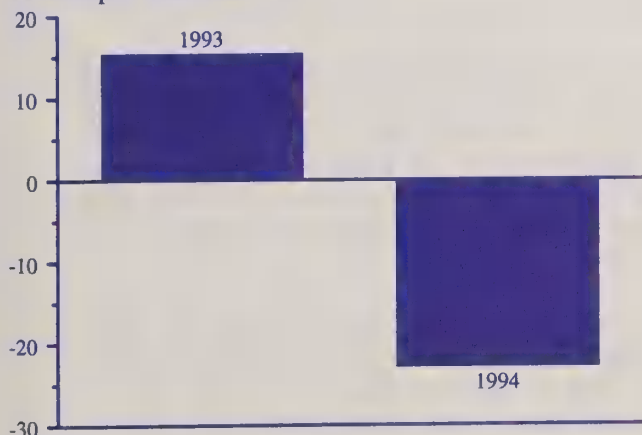
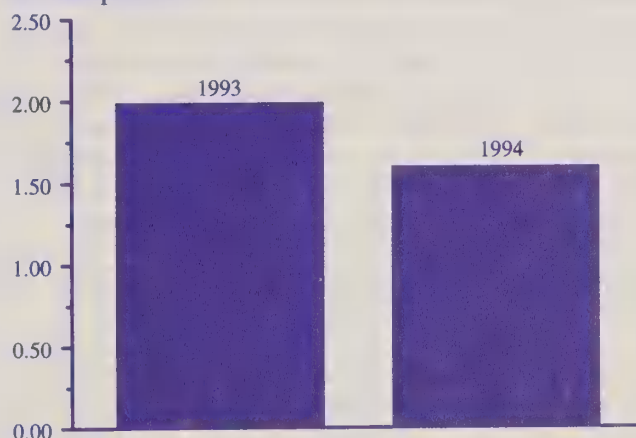


Figure 30 -- Milk returns

Dollars per cwt



General Economy, Strong in '94, Recovering from Slowdown in '95

A robust general economy in 1994 provided strong support for the agricultural sector. Despite slower growth in 1995, financial conditions should again be favorable to the farm sector.

Strong 1994 Growth Prompted Fed To Raise Interest Rates

The U.S. general economy in 1994 was as strong as it has been since 1988. GDP growth was 4.1 percent and about 3.3 million jobs were added to the economy. Per capita disposable income grew 2.5 percent. Economic growth was strong enough that the Federal Reserve, apprehensive about the emergence of inflationary pressures, raised the Federal Funds rate (the rate at which banks lend each other money to meet reserve requirements) from 3.0 percent in February to 5.5 in November. Correspondingly, the average 3 month T-bill yield rose from 3.0 percent in 1993 to 4.3 percent in 1994. The bank prime rate moved in lock-step with the short-term rates influenced by the Federal Reserve. Long-term interest rates moved up with short-term rates, albeit less sharply, until the end of the year when they began dropping. The average 10-year T-bond yield rose to 7.1 percent in 1994, up from an average of 5.9 percent in 1993. The AAA bond rate went from 7.2 percent in 1993 to an average 8.0 percent in 1994, a smaller adjustment given the improvement in corporate balance sheets, which lowered the risk premia for commercial lending above Treasury bond rates. In December, long-term rates fell, reflecting lower expected inflation and structural budget deficits and an expectation that the economy would slow down enough for the Fed to lower short-term interest rates.

Partly because of the Federal Reserve's actions and partly due to weak producer price and wage increases, consumer prices rose only 2.7 percent in 1994, the same as in 1993.

Housing, Auto, Business Equipment and Agricultural Sectors Affected Little by Higher Interest Rates in 1994

Construction, cars, business equipment sales and farm lending are typically very dependent upon financial market conditions. Yet despite the upward movement in interest rates, construction grew in the double-digit range largely because of relatively modest increases in effective mortgage yields. The Federal Home Loan Bank average mortgage rate went from 7.2 percent in 1993 to 7.5 percent in 1994. Higher disposable income, employment growth, and improved consumer balance sheets stimulated housing demand. These same personal income factors and only a small rise in car loan rates, in the context of a very old auto fleet, brought record U.S. auto production and sales.

Real business equipment spending, led by computer sales, rose a near-record 17.6 percent. Corporations, awash with profits, bought equipment with retained earnings and new

bond and stock issues. Small businesses, aided by very good cash flow and readily available bank credit, also spent heavily on equipment.

As with car sales, business equipment sales and housing interest expenses are a significant point of interaction between the general economy and the farm sector economy. Notably the average interest cost for loans to farmers does not move as dramatically as the main indicators of interest rates in the general economy. Given the average cost of funds basis for a significant share of farm loans, and other factors, 1994 interest rates to farmers probably rose less than those to the average businessman. Reflecting average cost pricing, the nonreal estate interest paid by farmers rose from 8.3 percent in 1993 to 8.9 percent in 1994. At the same time, real estate interest rates rose from an average 7.8 percent to 8.0 percent, which demonstrates the ameliorating effects of average cost loan pricing. Of special importance in 1994 was that the strengthened rural and agricultural banking system, consistent with the healthy financial status of the banking industry as a whole, expanded the availability of loans to farmers. For many farm operators the importance of getting a loan appears to have outweighed paying slightly higher interest rates.

Farm Sector Benefits from Minimal Inflation, Weakening Dollar

From the perspective of the farm financial situation, the general economy could hardly have been better, despite increasing interest rates.

Limited inflation in the general economy in 1994 provided the backdrop for stable domestic demand for farm products. In turn, the solid growth in U.S. disposable income, which exerts the greatest influence on the demand for animal products, may have kept prices from falling as much as they would have otherwise in the oversupplied markets for beef and pork.

The bigger story on the cash receipts side may be the strong growth in exports aided by a pickup in world growth and a weak dollar at the year's end. Fortuitously, the fall in the value of the dollar (making U.S. goods more price competitive) came at time of falling domestic prices for many farm sector products. The United States ended the year with record exports.

In view of the rising U.S. interest rates, the recent decline in the dollar relative to German and Japanese currencies, which began in late 1994, was somewhat surprising. According to most analysts, the dollar remains undervalued relative to other

major currencies. Analysts attributed the dollar's fall to a decline in confidence as the three major countries of North America dealt with the Mexican peso crisis.

Annual movements in the prices of most manufactured farm inputs appear to be driven more by agricultural producers' demand than by changes in economy-wide variables. A significant exception to that characterization is petroleum-based fuel. Crude oil prices dropped more than 80 cents per barrel, going from an average of \$16.41 per barrel in 1993 to \$15.59 during 1994. Diesel fuel prices fell more than 5 percent in that period.

For 1994, the prices of vehicles and machinery used on farms were also strongly affected by the macroeconomy. Increases in the prices of these inputs might be expected to be modest given that general wholesale prices, as measured by the producer price index, were up only 1.7 percent. Yet the prices paid index for autos and trucks increased 3.9 percent and the farm machinery index rose 3.8 percent. Domestic auto production was a record high in 1994 as sales jumped to 7.3 million units, up from 6.7 million in 1993. That strong overall demand for cars drove up the price of autos and was reflected in what farmers paid for cars and light trucks. In the case of tractors, the non-agricultural economy contributed to higher farm input prices. The price of tractors was up because an increased demand for farm tractors coincided with the increased demand for construction-type tractors resulting from the building boom.

A major problem in the economy in 1994 was the very large build-up of inventories, both in the farm and non-farm sectors. When the inventory growth is out of line with sales growth, industrial or agricultural output will tend to fall. The danger is that output will fall too much triggering a recession.

Review of First-Half 1995

For 1995, U.S. economic growth has gone from a 2.7-percent annualized rate in the first quarter to 1.1 percent in the second quarter. During the first quarter of 1995 industrial production grew 5.2 percent, reflecting strong growth in business equipment sales, auto sales, and construction. By the second quarter auto production and construction declined. A slowdown in inventory accumulation, while part of a necessary adjustment, further slowed growth in the second quarter. Industrial production dropped 2.4 percent in the second quarter. Because of weak industrial production and a sharp slowdown in employment growth in July, the Federal Reserve lowered the Federal Funds rate by 0.25 percent, largely ratifying the drop in short term rates and the 1.5 percent drop in long-term treasuries since the end of 1994. The prime dropped by the same amount to 8.75 percent. The international value of the dollar, measured against major currencies, has declined more than 10 percent in value since last fall. Although modestly, crude oil prices rose in the first quarter, even while diesel and gasoline prices dropped. Diesel prices rose in the second quarter to about the fourth-quarter 1994 level, reflecting a modest economic recovery in Europe and moderate growth in final demand in the United States despite the industrial slowdown.

1994 U.S. Agricultural Exports Reach Record \$45.7 Billion

U.S. agricultural exports in the last quarter (October-December) of 1994 were a record \$14.1 billion, a surge that pushed the value of exports to a record \$45.7 billion. Bulk exports were \$18.6 billion, gaining 2 percent over 1993, and high-value products (HVP) rose 11 percent to \$27.2 billion. There were strong gains in cotton, red meat, poultry meat, and horticultural products.

Volume of Bulk Export Declines, Value Increases

Total bulk commodity export volume fell 9 percent to 97 million tons in 1994 because of lower wheat, coarse grain, and oilseed shipments. However, export value rose with higher commodity prices offsetting the decline in volume.

Rice and cotton were the only bulk commodities that increased in export volume in 1994. The value of rice exports exceeded \$1 billion, the highest since 1981, with volume totalling nearly 3 million tons. Japan was the leading market for rice exports. U.S. cotton exports increased 53 percent to 1.7 million tons because of declining supplies in Pakistan and India, and strong demand in China. The export price for U.S. cotton, at \$1,500 per ton, was 13 percent higher than 1993.

The volume of export wheat, coarse grain, and oilseeds exports was down 11 percent, but higher prices in 1994 limited the value decline to 7 percent. Egypt was the leading market for wheat in 1994, Japan for coarse grains, and the European Union imported largest quantity of soybeans.

High Value Product Exports Reached Record High

HVP exports increased 12 percent to \$27.2 billion in 1994. Exports gained in almost every commodity category; but much of the gain in HVP exports was in consumer food items — fruits, nuts, vegetables, red meat, and poultry meat. U.S. exports of fruits, nuts, and vegetables increased 14 percent to \$8.4 billion in 1994. Canada was the major destination. U.S. red meat exports rose 11 percent to a record \$3.7 billion. Poultry meat exports jumped 43 percent to \$1.6 billion on strong demand in the former Soviet Union (FSU), Hong Kong, Mexico, and Japan.

(For additional detail see ERS *Foreign Agricultural Trade of the United States*, January/February 1995)

Prospects for the Second Half of 1995 and Implications for Agriculture

The second half should see a modest recovery with GDP growth between 2.0 and 2.4 percent with only a slight pickup in overall inflation. Producer prices should rise only moderately. Interest rates should average about what they did in the first half with short-term interest rates declining in the fourth quarter. The dollar, while strengthening, will remain low against major foreign currencies. With higher world growth in the last half of 1995, overall exports should grow strongly and larger agricultural exports will be supported.

The 1995 economy will not be as favorable to agriculture as in 1994. First, the prices component of expenses should rise slightly faster than last year. The major drivers are (1) higher fuel prices, (2) higher average cost of funds to lenders as a lagged effect of the higher 1994 interest rates, and (3) about 2 percent growth in aggregate producer prices.

The individual commodity supply situations should be a bigger part of the strong growth in cash receipts in 1995 than they were in 1994, with the low dollar offsetting higher prices to keep farm export demand strong.

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Farm Income in 1995 Likely To Be Below Previous 5-Year Average

Crop receipts could be high, but oversupply is depressing cattle prices and may reduce cash receipts.

Both net farm and net cash income are forecast below their 1990-94 averages. Crop receipts could surpass the 1994 record. In contrast, livestock receipts may be lower than the previous 5-year average. Overall farm sector profitability and solvency should be stable. Similarly, farm household income from farm and nonfarm sources is expected to remain steady. For historical farm income numbers and 1995 forecasts see appendix tables 1 and 2.

Cattle And Calf Receipts Forecast Lower in 1995 While Corn Receipts May Increase

In the 1990's, farm operators have earned 20 percent of their gross cash income from sales of cattle and calves. In 1995, cattle and calf cash receipts could be lower than those of any other year in the 1990's, explaining most of the forecast decline in livestock cash receipts. Demand for beef has not been strong enough to keep prices from falling in the face of the largest beef cow inventories since 1984. For historical crop and livestock cash receipts and 1995 forecasts see appendix table 4.

Corn provides a good illustration of the forces behind the higher crop receipt forecast. Corn has provided 8 percent of farm gross cash income in the 1990's, and 1995 cash receipts from corn could be higher than in any other year in the 1990's. Corn production in 1995 could be about 20 percent lower than the record 1994 crop. Smaller corn supplies and strong demand, partly due to exports to countries such as China, have strengthened prices.

Government Payments May Decline in 1995

Government payments have made up 5 percent of gross cash income in the 1990's and have averaged about \$10 billion per year. Because lower supplies have strengthened 1995 grain

prices, Government payments could be the lowest for any year in the 1990's.

Manufactured Input Expense Forecast Higher

Expense for manufactured inputs, including fertilizer, pesticides, and petroleum fuels, has made up 15 percent of the cash expense of farming in the 1990's. In 1995, expense for manufactured inputs could be higher than for any other year in the 1990's, largely due to higher fertilizer prices. Farm origin inputs, including feed, livestock, and seed, have made up 30 percent of farm cash expenses in the 1990's. In contrast to manufactured inputs, expense for farm origin inputs in 1995 is forecast to be close to average for the 1990's, partly because lower cattle prices are helping to moderate the expense of purchasing livestock. For historical information on farm expenses and 1995 forecasts see appendix table 5.

Stable Farm Sector Financial Performance in 1995

Rates of return on farm assets, farm equity, and other profitability measures are forecast to remain steady in 1995. The debt-to-asset ratio suggests that the solvency position of the farm sector will remain about the same in 1995 (table 8). The debt servicing ratio is the proportion of gross cash income needed to service debt. In 1983, principal and interest payments took 28 percent of gross cash income. In 1995, principal and interest payments are expected to take between 14 and 15 percent of gross cash income. This measure, which improved significantly in the late 1980's, has been fairly stable throughout the 1990's.

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Revisions to 1992 Sugar Beet and Sugarcane Production Costs

by

Robert G. McElroy and Mir Ali ¹

Abstract: Sugar beet and sugarcane growers were surveyed in 1992 to collect cost-of-production information. Cost estimates based on these surveys have been published by USDA for the past 2 years. The methods for estimating sugar production costs varied from those methods USDA uses for estimating production costs for other commodities. To bring the sugar cost estimates into conformance with the standard methods used for major field crops, ERS has reestimated the costs, starting with the latest survey year, 1992.

Keywords: Costs of production, sugar beets, sugarcane, Farm Costs and Returns Survey

USDA's Economic Research Service (ERS) began its current program of estimating costs of production for major crops, livestock, and milk in 1975 under mandate from the 1973 farm bill. Sugar beets and sugarcane were added to the program in 1981.

In 1984 ERS began using the Farm Costs and Returns Survey as the primary data source for costs of production (COP). This survey is conducted annually to collect whole-farm financial information. Special versions of the questionnaire are used each year for commodity-specific information relating to inputs required to produce a commodity like sugar beets or sugarcane. Any specific COP survey version is conducted on a 5-year rotation. In the case of sugar, the most recent survey was for the 1992 production year.

Until last year, three different work areas of ERS were responsible for developing estimates of costs of production. Production costs for the major field crops (including the program crops of feed grains, wheat, rice, and upland cotton), livestock and milk, and sugar and tobacco were estimated using slightly different methodologies.

ERS has decided to bring COP data collection and estimation procedures for all commodities into methodological conformity. For livestock and milk this has already been done. Burley and flue-cured tobacco are being surveyed for the 1995 and 1997 production years and will be updated then. Sugar beet and sugarcane growers, however, were just surveyed 2 years ago and will not be resurveyed for 3 more years, so ERS has decided to reestimate sugar COP from the 1992 survey.

The 1981 farm bill established the National Agricultural Cost of Production Standards Review Board to examine and review ERS' methodologies for estimating costs of production. This

advisory board was made up of farmers, ranchers, academics, and others with a professional interest in methods and procedures used to estimate costs of production. Over a 12-year period the Board reviewed in detail how ERS collects data and how these data are used to develop COP estimates. From this review, the Board made recommendations as to what concepts and methods best described cost situations from their vantage point.

Most recently, the American Agricultural Economics Association established a task force to examine, review, and make recommendations on how to standardize COP methods. ERS is attempting to bring all COP methods into compliance with recommendations as discussed by the task force. Once this is done, analysts and policy makers will be better able to compare COP estimates among commodities and across analysts who may have used a wide variety of disparate procedures.

How Do Methodologies Differ?

In the case of sugar beets and sugarcane, there are several areas of inconsistency between previously published estimates and the revisions. These inconsistencies can be divided into 1) factors accounting for better representation of the target population and 2) factors relating to estimation methodologies.

With respect to the target population, the Farm Costs and Returns Survey (FCRS) is a probability-based stratified random sample from a list of sugar beet and sugarcane growers. Being a sample, the FCRS does not necessarily account for 100 percent of farms, although it comes close. To ensure maximum coverage of the population, the survey expansion factors were revised using secondary data. Procedures for this "undercoverage adjustment" were implemented in the 1992 FCRS. These procedures were applied to the 1992 sugar beet and sugarcane survey. No undercoverage adjustments had been done earlier in published sugar COP budgets. Al-

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though this changed costs for all inputs, it had little impact on total-dollar production costs relative to other adjustments. (For a fuller description of FCRS sampling methodologies and their use in costs of production, see *Economic Indicators of the Farm Sector: Costs of Production — Major Field Crops & Livestock and Dairy*, 1993.)

With respect to methodology, the FCRS tends to ask growers what they actually spent for certain inputs (e.g., total fertilizer expenses) as well as application rates (e.g., fertilizer mixes applied and to how many acres). Estimates for the survey year use total expense, while quantities are used with annual secondary data on prices to update costs between survey years. The previous estimates for fertilizer and chemical costs used the direct costs, as do the revised estimates. The major dollar differences between previous and revised estimates lie in those costs that are dependent on machinery use (such as repairs, fuel costs, capital replacement, and economic returns to non-land capital). In previously published estimates, repair and fuel expenses were based on direct costing, while capital costs were estimated from growers' responses to questions on depreciation and the market value of machinery and equipment. The revised estimates now use the growers' responses to questions on machinery inventories and actual field operations performed in growing beet or cane sugar. These responses are used with standard engineering equations to develop estimates of machinery use costs.

In some cases, such as with irrigation, detailed data were not collected on the systems, only the depreciation of irrigation equipment. The standard methodology for estimating irrigation costs is similar to that for machinery (description of systems, amount of use, and engineering relationships). Without these data for sugar beets and sugarcane, costs had to be estimated from the depreciation accounts, approximating the standard methodology as much as possible.

For sugarcane, much of the seed cane planted is grown on the operation (in the case of sugar beets, essentially all seed is purchased). Standard COP methodology costs this home-grown seed at the crop's prior-year price and adds this cost to any cost of purchased seed. Earlier sugarcane costs of production included only purchased seed, while the revised costs include both purchased and home-grown seed.

Hawaii is a special case. Hawaii was not included in the 1992 sugarcane survey. Due to the integration of producers and processors in Hawaiian sugarcane plantations, growers do not have the production information requested in the producer survey. ERS has traditionally collected Hawaiian production costs by auditing the processors' books. These processors were last audited in 1988. The Hawaiian costs and returns that have been published since then have been updated from this base year. With no 1992 base-year survey for the State, the estimates prior to and including 1992 have been kept as they were. For 1993 and 1994, the same methodologies used for the other States have been applied to the 1992 Hawaii estimates, in essence considering 1992 as a base from which to update.

ERS' standard COP budgets are considered "sector" accounts. That is, they present costs for the average acre regardless of

ownership. In reality, many farms are made up of fields that are owned, cash rented, and/or share rented. The published cash expenses are total costs of the inputs, regardless of who paid for them. Rental costs are accounted for in the allocated return to the land. This "net land return" is a composite of the rental costs less any landlords' contribution to purchased inputs. The earlier cost estimates did not subtract the landlords' costs, thereby double counting these costs in the total economic costs.

Finally, beet acreage is frequently planted in a rotation with fallow land, especially in Texas. Standard COP methodology requires that the cost of fallow land be included with the net land return. In essence, this means that the land charge must be doubled on those farms with fallow land. Previously, this fallow land was not included.

Differences Between Previously Published and Revised Cost Estimates

Sugar beets — Sugar beet total economic costs for 1992 were revised downward by \$55.64 per planted acre (table 8). The adjustment for undercount of small farms played a small role, as it did with sugarcane. This adjustment probably accounts for the largest number of changes in variable cash expenses, although it accounts for only a small portion of the total change in costs. Using the engineering approach to estimate machinery operation costs made the most change in total input costs. Fuel and repair costs both were reduced 5-8 percent.

Fixed expenses changed more than total variable expenses, both in dollar differences and percentages. Two major factors account for these changes. Prior estimates excluded landlords' contributions to expenses. The standard sectoral definition of costs of production, however, includes landlords' expenses. This would tend to raise the revised estimates, and it did for taxes and insurance where it is common for landlords to pay taxes on the rented land. Overhead and interest expenses declined. The difference is explained by how these whole-farm expenses are distributed among the farm's different enterprises.

The standard methodology is to allocate whole-farm expenses on the basis of the commodity's (in this case sugar beets or sugarcane) value of production in relation to the whole farm's total value of production. Prior estimates allocated whole-farm costs on the basis of cash sales as measured by the grower's responses to his or her total payments received from the mill by a certain date. Cash sales do not necessarily represent the given year's production, particularly for grains, which are sold throughout a marketing year. This makes it particularly difficult to estimate the farm's total value of production in a manner consistent with the value of production of the sugar crop. Both have to be in consistent units to allocate the whole-farm expenses.

Capital replacement, or economic depreciation, expenses were reduced \$16.52 per acre. Prior estimates used actual depreciation reported by growers while revised estimates use the engineering approach as with all other COP commodities. The engineering approach is the preferred method because a farm that may have depreciated all its machinery still has a value

in this machinery. The COP budgets are not cash accounting measures like an income statement. Instead, they are developed to identify costs associated with each input and production activity used in growing a specific crop or livestock commodity.

The other major change in expenses is with land charges. In COP methodology this is a composite cash/share rental rate net of landlord costs and real estate taxes (both already included in cash expenses). With sugar beets, the addition of the fallow charge raised net land rent.

Sugarcane — For the 1992 crop, the revised total economic costs for producing U.S. sugarcane are \$1,043.23 per harvested acre, up from the previous estimate of \$1,000.64. Many of the individual cost items showed little change.

Including the cost of home-grown seed cane raised the U.S. average seed cost \$34.01 per acre. By estimating machinery

costs with the engineering approach, machinery operating costs tended to fall. For example, energy costs were reduced about \$5 per acre and repair costs were reduced about \$8. On the other hand, capital replacement costs (economic depreciation) rose \$10.

The survey asked sugar growers to report their actual cash interest expenses for the year. Because farmers do not, as a rule, keep records on their fixed cash expenses by commodity, ERS allocates the whole-farm expense among commodities based on each commodity's contribution to the operation's total value of production. Applying this methodology to cash interest expenses resulted in a decrease in interest costs of \$19 per acre. Other fixed cash expense items showed little change. Total returns to owned inputs, the imputed ownership costs of the factors of production, increased \$17.

Table 8 -- Comparison between 1992 revised and previous U.S. sugar cost-of-production estimates

Item	Sugar beets			Sugarcane		
	Revised	Previous	Difference	Revised	Previous	Difference
	\$ per planted acre			\$ per harvested acre		
Variable cash expenses:						
Seed	34.42	35.49	-1.07	36.00	1.99	34.01
Fertilizer	57.34	56.05	1.29	62.92	60.67	2.25
Chemicals	68.62	68.43	0.19	60.46	59.99	0.47
Custom operations	43.15	39.59	3.56	51.92	51.76	0.16
Fuel, lube, & elect	42.46	45.91	-3.45	27.43	32.32	-4.89
Repairs	39.22	41.45	-2.23	92.18	100.20	-8.02
Hired labor	103.71	102.31	1.40	323.24	329.24	-6.00
Purchase of irrigation water	9.35	5.80	3.55	4.77	4.51	0.26
Freight & dirt hauling charges	14.65	15.08	-0.43	n/a	n/a	n/a
Miscellaneous	11.09	12.87	-1.78	8.47	13.95	-5.48
Hauling allowance (-)	7.33	9.23	-1.90	8.00	7.76	0.24
Total	416.68	413.75	2.93	659.39	646.87	12.52
Fixed cash expenses:						
General farm overhead	33.15	56.51	-23.36	71.29	68.70	2.59
Taxes & insurance	41.02	30.89	10.13	32.01	32.15	-0.14
Interest	47.35	58.71	-11.36	11.17	30.05	-18.88
Total	121.52	146.11	-24.59	114.47	130.90	-16.43
Capital replacement	51.64	68.16	-16.52	68.33	57.36	10.97
Returns to owned inputs:						
Operating capital	7.92	8.59	-0.67	11.75	11.45	0.30
Nonland capital	27.00	8.13	18.87	26.90	18.13	8.77
Net land return	130.06	173.24	-43.18	159.49	146.76	12.73
Return to coop share	14.75	16.43	-1.68	n/a	n/a	n/a
Unpaid labor	45.21	47.37	-2.16	14.07	19.22	-5.15
Total economic costs	767.43	823.07	-55.64	1,043.23	1,000.64	42.59

Source: 1992 Farm Costs and Returns Survey, USDA.

Reconciliation Between BEA's Farm National Income and the USDA Farm Sector Accounts

by Roger Strickland, Cheryl Steele, and George Smith ²

The Bureau of Economic Analysis (BEA) in the Department of Commerce publishes a measure entitled "Farm national income" in the July issue of the Survey of Current Business. BEA develops its sector measure by making adjustments to the USDA value-added account components. The largest adjustments relate to nonoperator landlords (NOLL) which are included in the farm sector accounts by USDA but placed in the real estate sector by BEA. Other adjustments are made to achieve consistency in the farm sector accounts with inter-sector transactions carried in BEA's Government Sector, such as treatment of Commodity Credit Corporation loans, grazing fees of public land, Government payments to farmers, and business taxes paid by farmers.

Differences in BEA's and USDA's revision schedules are another source of discrepancies in the numbers published by these two agencies.

Farm Output

Crops

BEA cash receipts = USDA crop cash receipts
 - USDA net CCC loans @ book value
 + USDA CCC loans forfeited @ book value
 + USDA forest product sales.

BEA change in farm inventories = USDA value of change in inventory
 + BEA net CCC loans @ market value
 - USDA CCC loans forfeited @ book value.

Livestock

BEA cash receipts = USDA livestock cash receipts.

BEA change in farm inventories = USDA value of change in inventory.

Farm Housing

For 1988, BEA farm housing = USDA gross imputed rental value of farm dwelling.

For all other years, BEA = USDA for 1988, extrapolated using percentage change in BEA farm residential housing valued at

current-period replacement cost.

Home Consumption

BEA farm products consumed on farms = USDA home consumption.

Other Farm Income

BEA other farm income = USDA other farm related income
 - USDA or BEA patronage dividends received
 - USDA forest products sales (to crop receipts)
 - USDA insurance indemnity payments
 + USDA reserve storage payments.

Intermediate Consumption (Outlays for Production Expenses)

BEA intermediate goods and services (expenditures) =
 1 USDA intermediate consumption outlays
 2 + BEA imputed interest
 3 - Department of Interior grazing fees on public lands
 4 + USDA net rent to nonoperator landlords (NOLL), excluding government payments to NOLL
 5 + USDA interest on mortgage debt paid by NOLL
 6 + USDA property taxes paid by NOLL
 7 + USDA depreciation attributable to NOLL assets
 8 - Insurance indemnity payments
 9 - Motor vehicle licensing and registration fees.
 Note: Lines 1+2-3-8-9 equal BEA's nonrent component.
 Lines 4+5+6+7 comprise BEA's rent component.

Net Government Transactions

BEA neither adds government payments nor subtracts business taxes to derive its measure of gross farm product.

BEA computes Gross Farm Product as:

Farm Output
 - Intermediate goods and services purchased.

BEA then computes Farm Net Income as:

Gross Farm Product
 - Consumption of fixed capital
 - Indirect business taxes and nontax liabilities
 + Subsidies to operators.

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Accounting for the Cost of Capital Inputs

by Chris McGath and Roger Strickland³

Abstract: USDA farm sector accounts require estimating the current cost of replacing the capital used up during a year. The estimation process involves determining a rate of utilization over the item's useful life and a means of valuation of the current cost of replacing the capital used up in any given year.

Keywords: Capital consumption, capital stock, economic depreciation

In the USDA farm income and value-added accounts, the capital consumption component of production expenses represents the costs of replacing at current prices the capital consumed in production processes or accidentally destroyed during the calendar year. It is the cost of sustaining the farm sector's stock of productive capital.

The accurate estimation of value added (income created) from the farm sector requires accounting for reductions in capital stock used in the production process, because depletions of the capital are not allowed by this measurement. To do otherwise would permit a cannibalization of the sector's capital stock as unaccounted-for inputs and a resultant overstatement of value-added or income.

Accounting for capital consumed or lost within the standard 12-month reporting year is difficult because capital items are by definition not totally consumed within the year of purchase and the rate of their consumption is difficult to measure. Estimates of the value of capital stock available for productive activities require estimates of capital formation, which equals new investment less the value of capital consumed in a year. USDA measures the cost of capital inputs used in the production of agricultural products in the capital consumption component of its farm income and value added accounts. The amount or proportion of consumption occurring within each year of use must be measured/estimated and valued at current prices to determine replacement costs.

Historically, the term capital consumption has been used interchangeably with depreciation, which may cause confusion for those whose perception of depreciation is grounded in familiarity with income tax reporting rules. Depreciation rules as used for income tax purposes have two major differences from USDA capital consumption accounting. First, tax accounting involves the amortization of the purchase price, with no allowance for replacement cost. Secondly, tax accounting rules permit alternative amortization schedules from which the taxpayer may select without a requirement that the choice exactly duplicate the actual rate of consumption of the capital input.

In recognition of these differences, estimates of the current cost of capital consumed are sometimes referred to as economic depreciation. USDA uses the term capital replacement to distinguish its estimates of economic depreciation from business depreciation and to emphasize that they represent the current cost of replacing the capital used up during a year.

USDA accounting computes separately and then sums estimates for capital consumed in production and the losses due to accidental damage. Capital consumed represents current replacement costs for the proportion of total capital stock used up during a given calendar year. Accidental damage estimates represent damage, destruction, or loss of assets from sudden, unanticipated events such as natural disaster, vandalism, accident, or fire—losses typically eligible for insurance coverage. Accordingly, accidental damages do not attempt to include losses due to negligence, lack of maintenance, or obsolescence—losses resulting from poor management.

ERS analysts have neither the data nor capacity to maintain separate accounting records for each capital input item used in the farm sector. As a proxy of capital consumption, the estimates are done on the basis of six categories of farm capital: tractors, farm trucks, farm automobiles, other farm machinery, operator dwellings (including mobile homes), and service buildings. Capital replacement is not computed for land improvements and breeding stock.

The two major considerations in the task of accounting for the cost of capital inputs are: 1) determining how to allocate the cost of capital inputs over the years they are used and 2) gauging the true cost of capital items in each year.

Businesses have a choice of amortization schedules that spread the cost of capital items over a number of years in ways that may or may not reflect the actual use or consumption. Businesses usually choose the schedule that is most favorable for tax purposes. A number of economic depreciation allocation procedures also exist. All of them are designed to allocate capital costs according to their flow of services or rate of consumption. If the cost of capital items is not matched with the output they took part in producing, the resulting estimates of net value of production and analysis based on them will be inaccurate.

USDA uses the declining balance procedure because it believes that this method's allocation pattern probably best simu-

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lates the well-established tendency for capital items to be used heavily in the initial years after their purchase and then with declining intensity. The declining balance method takes a constant percentage of the undepreciated/remaining value of a capital item each year. Because the remaining value is less each year, the product of the replacement rate and remaining value shrinks over the life of the asset, corresponding with the decline in its use. Roughly half of an asset's value is depreciated in the first quarter of its life and 75 percent by the halfway point. Figure 31 contrasts the declining balance pattern with the straight-line pattern.

This procedure permits accounting for capital items that may have a long life, but little effect in real terms on capital consumption after the early years. To put this in perspective, a tractor used for land preparation and planting operations in its early years may later be relegated to lighter work, such as pulling trailers and manure spreaders, and kept on the farm for decades. While the hours of operation are relatively few, they are adequate for the job. Moreover, the contribution may be substantial during critical, peak periods, because newer, more sophisticated capital may then be deployed to higher-valued uses. Also, older equipment may allow someone to continue to operate a small farm profitably, either for the above reason or if someone is entering the sector and is willing to substitute labor for capital.

Because a capital item's current worth is almost always different from its original cost due to changing prices, USDA's capital replacement procedures must estimate the cost of a capital item's contribution to production in terms of current prices. If capital replacement estimates do not reflect current costs, the net value of production will be overstated and the estimated value and capacity of the remaining capital stock will be understated in each year. For this reason, capital consumption estimates based on historical costs have little relevance to the measurement of farm sector output or income.

Determining the true cost of a capital input in the current year is similar to accounting for the cost of goods coming out of

inventory by LIFO (Last-In First-Out) method. Sector accounting must account for the costs of the goods, i.e., the services provided by capital inputs, coming from its capital stock inventory at their current cost. Essentially, it treats the items in the sector's capital stock inventory as though they and their potential flow of services were replaced each year for what identical pieces of items of capital would cost at their current market price and amortized anew.

Viewed in another sense, if they owned no capital inputs, farm operators would have to rent them or their services from someone outside the sector. In effect, operators would replace owned capital with rented capital. In that case, there would be an operating expense for leasing instead of capital costs. Capital replacement estimates are, in fact, comparable to what the rental cost of capital items would be, because those who rent out machinery do so on the basis of current prices.

Accounting Procedures

Ideal estimates of capital stock and consumption would sum separate calculations for each type of asset by age. However, this would require data on the amount and the average current market price of each type of capital still in use by age of the item. No one has the data or the capacity to estimate capital consumption this way. Further, the benefit from the added accuracy probably would not justify the costs of the necessary data collection.

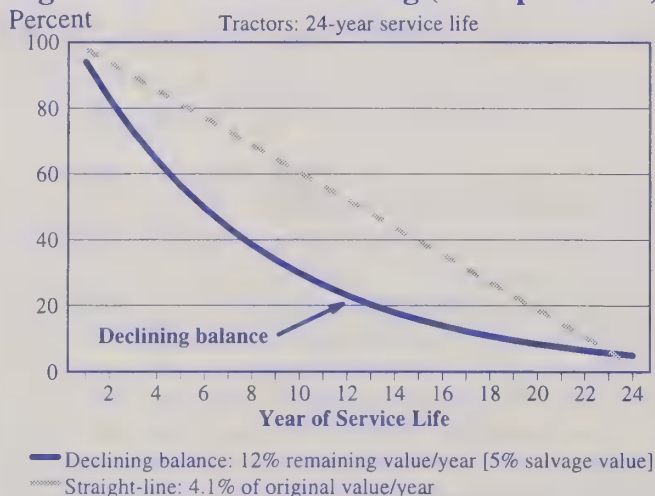
Instead, ERS employs a form of the perpetual inventory method, which is widely used to derive estimates of capital formation, stock and consumption. The typical structure of a perpetual inventory:

1. Related types of capital inputs are aggregated into categories.
2. Annual expenditures are deflated to get a common denominator and summed in constant dollars to maintain capital stock. (To create a capital stock, analysts must accept an estimate of existing stock at some point, which may be the period that subsequent expenditures are deflated to.)
3. An average service life is estimated for the items in each category.
4. It is assumed that capital leaves the sector at the end of its average life.
5. To calculate capital replacement, a percentage or fixed amount of the constant-dollar stock is taken each year and inflated to represent current dollars with the same price index used to deflate current-year expenditures.

The precision of capital consumption estimates based on a perpetual inventory relies on the accuracy of 1) capital expenditures, 2) the average service lives for each category, and 3) the revaluation procedure that accounts for price changes.

The revaluation method chosen is particularly important, for it is the basis for relating capital items acquired over many years. Without this common basis, analysts could not com-

Figure 31. Value Remaining (Undepreciated)



pare stock levels and rates of consumption across periods because comparisons in current dollars are not meaningful. Holding all stock at constant dollars eliminates the need to calculate separately the current replacement value of the remaining stock from each year's expenditure. Further, because the vast majority of capital stock at a point is from prior years' purchases, estimating its value at that point and the cost of its use on a par with the output during a production period entails revaluing almost all of the stock.

Devising a price index to both deflate current-year expenditures and inflate constant-dollar replacement estimates to current dollars is problematic. A common price base implies that all the stock in a category is of equal capability and, consequently, that changes in prices reflect only inflation and not improvements. When price increases are the result of improvements in quality, current-dollar capital replacement estimates of existing stock are higher than their actual market value, contributing to an underestimation of the net value of current production, which could lead to unwarranted concern for the economy's or a sector's vitality.

The declining balance method does mitigate the effect of this problem somewhat. It takes a greater share of an item's worth in its earliest years when the quality difference between it and current-year items is smaller. Consequently, current-dollar estimates of the replacement value of older stock are reduced. Further, if the productive capability of capital inputs does not decline as quickly as their value is decreased by the declining balance method (as some studies have suggested), the remaining value of older stock may well be high relative to newer items.

The six categories into which ERS aggregates capital are tractors, automobiles, trucks, other farm machinery, service buildings, and operator dwellings. For trucks and autos, ERS uses only the "farm share," which is the percentage that operators report as the farm business share for tax purposes. Current farm shares are based on a 10-year moving average of farm share percentages reported for capital expenditures in the Farm Costs and Returns Survey (FCRS). In 1994, the farm share percentage was 83 percent for trucks and 39 percent for autos. For all other categories, we assume that 100 percent of the stock is for farm business purposes.

The source for all annual expenditure data is the FCRS. One significant problem with the expenditure figures now being used is that they include interfarm sales, which double count items already in the existing capital stock. Questions are being framed to collect better data on these sales in future surveys so that they can be deducted from gross expenditures.

Table 9 gives the service life and replacement rate for each category of capital asset. Service lives have been fixed since the comprehensive procedural changes made in capital expenditures and consumption estimates in 1955. They are based mainly on the IRS Schedule F at that time. The replacement rates reduce the constant-dollar value to 5 percent of the original in the last year of the service life, when we assume that items are scrapped for their salvage value.

To account for aged capital that is withdrawn from the sector because it is obsolete, worn out, or sold to persons outside the farm sector, ERS subtracts an amount referred to as real capital withdrawn. The value of real capital withdrawn is an arbitrary constant for each category.

Accidental damage estimates are calculated by the Bureau of Economic Analysis, Department of Commerce. They are based on casualty loss claims filed by farmers with insurance companies. They do not represent losses resulting from poor management, so they do not include losses due to negligence, poor maintenance, or obsolescence.

ERS calculates a separate Prices Paid Index for each category of capital items. The automobile and truck Prices Paid Indexes are based on unpublished data obtained from the National Agricultural Statistics Service (NASS) on prices paid for used automobiles and 3/4-ton trucks. The tractor Prices Paid Index is based on NASS prices paid for different sizes of new tractors weighted by the number of new tractors purchased in each size category. The machinery Prices Paid Index uses NASS prices and weights for various types of machinery. NASS's farm wage rates and building and fencing materials indexes are used to calculate the service building Prices Paid Index.

An example of ERS's capital consumption procedures for tractors is given in table 10. All other categories, except operator dwellings, currently follow the same steps. Final estimates are summarized in lines 1-3.

1. Analysts calculate net new expenditures by subtracting accidental damage from gross capital expenditures in current dollars and convert that estimate to constant dollars using a Prices Paid Index (lines 4-7).
2. An estimate of depreciable real capital stock is obtained by adding one-half of constant-dollar net expenditures less withdrawals to the constant-dollar capital stock inventory existing at the beginning of the year (lines 6-11).

Table 9-- Service lives and replacement rates used by USDA

Item	Replacement Rate	Service life (years)
Service buildings	7.2%	40
Tractors	12.0%	24
Trucks	21.0%	13
Automobiles	22.0%	12
Machinery and equipment	14.0%	20
Operator dwellings	2.0%	148

The formula underlying these rates and lives is:
 $\text{Salvage value (5\%)} = \text{Price} (1 - \text{Rate})^{\text{Service life}}$

Net current-year expenditures are halved to account for expenditures and withdrawals made at different points of the year, which should be included in the capital replacement estimate only after the date purchased or withdrawn. ERS assumes that purchases and withdrawals are evenly distributed across the year, which produces an average of one-half of net expenditures in service throughout the year.

3. ERS analysts then multiply the depreciable real capital stock by the replacement rate to estimate capital replacement in constant dollars (lines 12-13).
4. The constant dollar capital replacement estimate is then converted to current dollars with the same Prices Paid Index. The result becomes the current-year USDA capital replacement estimate (line 14).

5. The end-of-year real capital stock is then calculated as the beginning-of-the-year real capital stock plus net real additions less real capital replacement. This figure becomes the beginning-of-the-year real capital stock in the following year (line 15).

Capital consumption on operator dwellings is currently calculated by taking 2 percent of current market value for capital replacement and adding adjusted accidental damage.

ERS periodically reevaluates the accounting concepts it uses to produce farm income and balance sheet estimates. Over the next year, the farm income team of the Farm Business Economics Branch will be reviewing its capital consumption procedures. The team is aware that there are limitations in the current method and will address those issues in an effort to upgrade ERS estimation procedures.

Table 10--Tractor capital consumption, 1990-94

Line	Source	Item	1990	1991	1992	1993	1994
			1,000 dollars				
1	[2 + 3]	FINAL CAPITAL CONSUMPTION	3,559,331	3,636,292	3,525,109	3,542,053	3,687,070
2	[14]	FINAL DEPRECIATION	3,552,506	3,629,467	3,518,284	3,535,228	3,680,245
3	[5]	FINAL ACCIDENTAL DAMAGE	6,825	6,825	6,825	6,825	6,825
<i>Calculation Procedure</i>							
4	Input	Current expenditures	3,118,671	3,118,671	3,118,671	3,118,671	3,118,671
5	Input	Current accidental damage	6,825	6,825	6,825	6,825	6,825
6	Input	Prices Paid Index, 1935-1939=1.00	10.67	11.19	11.19	11.56	12.39
7	[(4 - 5) / 6]	Real new expenditures	291,713	231,191	252,034	231,999	232,953
8	Arbitrary	Real capital withdrawn	0	0	0	0	0
9	[(7 - 8) * 0.5]	Mid-year real new capital	145,856	115,596	126,017	115,999	116,476
10	[15 (Year-1)]	Beginning of year real capital stock	2,629,324	2,588,015	2,494,773	2,432,312	2,358,513
11	[9 + 10]	Depreciable real capital stock	2,775,180	2,703,610	2,620,790	2,548,311	2,474,989
12	Constant	Depreciation rate	0.12	0.12	0.12	0.12	0.12
13	[11 * 12]	Real depreciation expense	333,022	324,433	314,495	305,797	296,999
14	[6 * 13]	Current Depreciation Expense	3,552,506	3,629,467	3,518,284	3,535,228	3,680,245
15	[7 + 10 - 8 - 13]	End of year real capital stock	2,588,015	2,494,773	2,432,312	2,358,513	2,294,467

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Appendix table 1--Farm income statements, 1990-95

Item	1990	1991	1992	1993	1994	1995F
Billion dollars						
Cash income:						
1. Cash receipts	169.4	167.8	171.3	177.1	179.7	178 to 186
Crops 1/	80.3	82.0	85.7	87.1	91.6	92 to 97
Livestock	89.2	85.8	85.6	90.0	88.1	85 to 89
2. Direct Government payments	9.3	8.2	9.2	13.4	7.9	5 to 7
3. Farm-related income 2/	8.2	8.3	8.2	9.1	9.2	8 to 10
4. Gross cash income (1+2+3)	187.0	184.3	188.6	199.6	196.7	194 to 202
5. Cash expenses 3/	134.1	133.9	133.2	141.5	146.9	144 to 152
6. NET CASH INCOME (4-5)	52.9	50.4	55.4	58.1	49.8	45 to 55
Deflated (1987\$) 4/	46.7	42.8	47.7	47.0	39.5	34 to 44
Farm income:						
7. Gross cash income (1+2+3)	187.0	184.3	188.6	199.6	196.7	194 to 202
8. Nonmoney income 5/	8.0	7.7	7.8	7.9	8.1	7 to 9
9. Inventory adjustment	3.5	-0.2	4.2	-4.5	8.7	-1 to 2
10. Total gross income (7+8+9)	198.5	191.8	200.5	203.0	213.5	202 to 210
11. Total expenses	153.7	153.4	152.6	160.9	166.7	164 to 172
12. NET FARM INCOME (10-11)	44.8	38.4	48.0	42.1	46.7	34 to 44
Deflated (1987\$) 4/	39.5	32.6	39.7	34.1	37.1	25 to 35

F = forecast. Totals may not add due to rounding.

1/ Includes CCC loans.

2/ Income from machine hire and customwork, forest product sales, custom feeding service fees, and other farm sources.

3/ Excludes expenses for onfarm operator dwellings and noncash items such as capital consumption and perquisites to hired labor.

4/ Deflated by the GDP implicit price deflator.

5/ Includes the value of home consumption of farm products plus imputed rental value of operator dwellings.

Appendix table 2--Average income to farm operator households, 1990-95 1/

Item	1990	1991	1992	1993	1994	1995F
Dollars per operator household						
Farm operator household income	39,007	37,447	42,911	40,223	44,140	41,700 to 46,900
Farm income 2/ 3/	5,742	5,810	7,180	4,815	5,200	4,200 to 7,400
From self-employment	4,973	4,458	5,172	3,623	3,983	n/a
From other	768	1,352	2,008	1,192	1,217	n/a
Off-farm income	33,265	31,638	35,731	35,408	38,939	37,500 to 39,500
From wages, salaries, and non-farm businesses	24,778	23,551	27,022	25,215	29,355	n/a
From interest, dividends, and transfer payments, etc.	8,487	8,086	8,709	10,194	9,584	n/a

F = forecast. n/a = not available. Totals may not add due to rounding.

1/ Data for 1990 are expanded to represent the farm operator households surveyed in USDA's Farm Costs and Returns Survey. Data for 1991-94 are expanded to represent the total number of U.S. farms and ranches.

2/ Farm income to the household equals self-employment income plus amounts that operators pay themselves and family members to work on the farm, income from renting out acreage (1990-92), and net income from a farm business other than the one being surveyed. In 1993 and 1994, income from renting out acreage is included in income from interest, dividends, transfer payments, etc.

3/ If the additional 350,000 small farms included in the 1991 analysis were included in the 1990 analysis, the 1990 farm income to the household would be approximately \$4,600.

For information on household income contact: Susan Bentley 219-0931

Appendix table 3--Relationship of net cash to net farm income, 1990-95

Item	1990	1991	1992	1993	1994	1995F
Billion Dollars						
Gross cash income	187.0	184.3	188.6	199.6	196.7	194 to 202
Minus cash expenses	134.1	133.9	133.2	141.5	146.9	144 to 152
Equals net cash income	52.9	50.4	55.4	58.1	49.8	45 to 55
Plus nonmoney income 1/	8.0	7.7	7.8	7.9	8.1	7 to 9
Plus value of inventory change	3.5	-0.2	4.2	-4.5	8.7	-1 to 2
Minus noncash expenses	15.4	15.4	15.2	15.3	15.4	15 to 17
Labor perquisites	0.5	0.5	0.5	0.4	0.4	0 to 1
Net capital consumption	14.9	14.9	14.7	14.9	15.0	14 to 16
Capital consumption exc. dwellings	16.3	16.3	16.1	16.3	16.4	16 to 18
- Landlord capital consumption	1.4	1.4	1.4	1.4	1.4	0 to 2
Minus operator dwelling expenses	4.2	4.1	4.2	4.1	4.3	3 to 5
Capital consumption	2.0	1.9	2.2	2.1	2.0	1 to 3
Interest	0.6	0.6	0.6	0.5	0.6	0 to 2
Property taxes	0.6	0.6	0.6	0.7	0.7	0 to 2
Repair and maintenance	0.6	0.7	0.6	0.5	0.7	0 to 1
Miscellaneous	0.4	0.3	0.2	0.3	0.3	0 to 1
Equals net farm income	44.8	38.4	48.0	42.1	46.7	34 to 44

F = forecast.

1/ The value of home consumption and gross rental value of all dwellings.

Appendix table 4--Cash receipts, 1990-95

Item	1990	1991	1992	1993	1994	1995F
Billion dollars						
Crop receipts 1/	80.3	82.0	85.7	87.1	91.6	92 to 97
Food grains	7.5	7.3	8.5	8.2	9.5	9 to 11
Wheat	6.4	6.3	7.2	7.5	7.8	7 to 9
Rice	1.1	1.0	1.3	0.7	1.7	1 to 2
Feed grains and hay	18.7	19.3	20.1	20.2	20.6	20 to 24
Corn	13.3	14.4	14.7	14.6	15.0	15 to 17
Sorghum, barley, and oats	2.0	2.1	2.3	2.0	1.9	1 to 3
Oil crops	12.3	12.7	13.3	13.2	15.2	14 to 16
Soybeans	10.8	11.0	11.6	11.8	13.4	12 to 14
Peanuts	1.3	1.4	1.3	1.0	1.2	1 to 2
Cotton lint and seed	5.5	5.2	5.2	5.2	5.7	6 to 8
Tobacco	2.7	2.9	3.0	2.9	2.6	2 to 4
Fruits and nuts	9.4	9.9	10.2	10.3	10.1	9 to 12
Vegetables	11.4	11.5	11.8	13.1	13.0	13 to 15
Greenhouse & nursery	8.7	9.1	9.3	9.7	10.0	10 to 11
Livestock receipts 2/	89.2	85.8	85.6	90.0	88.1	85 to 89
Red meats	51.2	50.1	47.7	50.8	46.8	42 to 50
Cattle and calves	39.3	38.7	37.3	39.4	36.4	33 to 38
Hogs	11.5	11.0	10.0	10.9	9.9	10 to 11
Sheep and lambs	0.4	0.4	0.5	0.5	0.5	0 to 1
Poultry and eggs	15.3	15.1	15.5	17.3	18.4	16 to 20
Broilers	8.4	8.4	9.2	10.4	11.4	10 to 12
Turkeys	2.4	2.4	2.4	2.5	2.7	2 to 3
Eggs	4.0	3.9	3.4	3.8	3.8	3 to 5
Dairy products	20.2	18.0	19.7	19.2	19.9	19 to 21
TOTAL RECEIPTS	169.4	167.8	171.3	177.1	179.7	178 to 186

F = forecast. Totals may not add due to rounding.

1/ Includes sugar, seed, and other miscellaneous crops. 2/ Includes miscellaneous livestock and livestock products.

Appendix table 5--Farm production expenses, 1990-95

Item	1990	1991	1992	1993	1994	1995F
Billion dollars						
Farm-origin	39.8	38.9	38.9	41.6	41.6	39 to 43
Feed purchased	20.4	19.3	20.1	21.4	22.6	21 to 25
Livestock and poultry purchased	14.9	14.4	13.9	15.0	13.6	11 to 15
Seed purchased	4.5	5.1	4.9	5.2	5.4	4 to 6
Manufactured inputs	19.4	20.6	20.1	20.5	21.7	20 to 24
Fertilizer and lime	8.2	8.7	8.3	8.4	9.2	8 to 12
Pesticides	5.4	6.3	6.5	6.7	7.2	6 to 8
Petroleum fuel and oils	5.8	5.6	5.3	5.3	5.3	4 to 7
Interest	13.4	12.1	11.2	10.8	11.7	11 to 15
Nonreal estate	6.7	6.1	5.4	5.3	6.0	5 to 8
Real estate	6.7	6.0	5.8	5.5	5.7	5 to 7
Other operating expenses	47.0	47.9	47.3	52.4	55.6	52 to 58
Repair and maintenance	8.6	8.6	8.5	9.2	9.2	8 to 10
Machine hire and customwork	3.6	3.5	3.8	4.4	4.8	4 to 6
Marketing, storage & transportation	4.2	4.7	4.5	5.6	6.7	5 to 7
Labor	14.1	13.9	14.0	15.0	15.3	13 to 17
Miscellaneous	16.5	17.2	16.5	18.1	19.6	18 to 22
Other overhead expenses	34.3	33.9	35.1	35.7	36.1	35 to 38
Capital consumption	18.3	18.2	18.3	18.4	18.5	17 to 21
Property taxes	5.7	5.8	6.0	6.3	6.6	6 to 8
Net rent to nonoperator landlords	10.3	9.9	10.7	11.0	11.1	10 to 12
Total production expenses	153.7	153.4	152.6	160.9	166.7	164 to 172
Noncash expenses	15.4	15.5	15.2	15.3	15.5	15 to 17
Labor perquisites	0.5	0.5	0.5	0.4	0.4	0 to 1
Net capital consumption	14.9	14.9	14.7	14.9	15.0	14 to 16
Capital consumption exc. dwellings	16.3	16.3	16.1	16.3	16.4	16 to 18
- Landlord capital consumption	1.4	1.4	1.4	1.4	1.4	0 to 2
Operator dwelling expenses	4.2	4.1	4.2	4.1	4.3	3 to 5
Capital consumption	2.0	1.9	2.2	2.1	2.0	1 to 3
Interest	0.6	0.6	0.6	0.5	0.6	0 to 2
Property taxes	0.6	0.6	0.6	0.7	0.7	0 to 2
Repair and maintenance	0.6	0.7	0.6	0.5	0.7	0 to 1
Insurance	0.3	0.3	0.3	0.3	0.3	0 to 1
Cash expenses 1/	134.1	133.9	133.2	141.5	146.9	144 to 152

F = forecast.

1/ Total production expenses minus noncash and onfarm operator dwelling expenses.

Appendix table 6--Farm income distribution by selected enterprise type, 1992-95 1/

Item	Crops				Livestock			
	Total	Cash grain 2/	Cotton	Fruit/nut/vegetable	Total	Red meat	Poultry	Dairy
Cash receipts--								
Billion dollars								
1992	78.9	31.4	4.2	19.6	6.0	4.5	0.2	0.9
1993	73.2	20.5	2.1	21.2	11.3	7.4	0.5	2.6
1994F	81.4	33.3	5.0	21.4	10.2	8.3	*	1.0
1995F	82.9	33.2	5.6	21.7	10.4	8.3	*	1.0
Livestock								
1992	6.0	4.3	0.1	0.2	80.4	40.0	15.6	21.9
1993	4.2	2.7	0.1	0.1	86.4	43.8	17.3	22.2
1994F	6.0	4.2	*	*	82.2	38.7	18.3	24.7
1995F	5.5	3.9	*	*	81.4	37.8	18.5	24.2
Direct Government Payments								
1992	6.7	4.8	0.8	0.2	2.5	1.8	0.0	0.5
1993	9.4	6.8	1.2	0.2	4.0	3.0	0.0	0.7
1994F	5.6	3.7	*	*	2.3	1.8	*	*
1995F	4.9	3.1	*	*	2.2	1.8	*	*
Gross cash income-- 3/								
1992	94.9	42.4	5.3	20.3	93.3	48.4	17.5	23.6
1993	92.1	32.4	3.8	22.6	105.1	56.2	18.7	25.9
1994F	100.9	43.6	5.7	22.3	97.6	52.2	18.6	26.9
1995F	101.7	42.8	6.5	22.6	97.0	51.5	18.8	26.5
Cash expenses--								
1992	62.7	29.7	3.5	11.8	68.1	37.3	9.3	17.9
1993	62.7	26.7	3.5	13.6	76.0	44.9	9.3	19.2
1994F	68.8	31.7	4.4	13.7	75.8	45.7	10.7	20.8
1995F	69.4	32.2	4.4	13.8	76.5	45.8	10.6	21.0
Net cash income--								
Current dollars 4/								
1992	32.1	12.7	1.8	8.5	25.2	11.1	8.2	5.7
1993	29.4	5.7	0.3	8.9	29.1	11.3	9.5	6.7
1994F	32.2	12.0	1.4	8.6	21.7	6.6	7.9	6.1
1995F	32.5	10.6	2.0	8.8	20.2	5.6	8.1	5.6
Deflated (\$1987)								
1992	26.6	10.5	1.5	7.0	20.8	9.2	6.8	4.7
1993	23.8	4.6	0.2	7.2	23.6	9.1	7.7	5.4
1994F	25.5	9.5	1.1	6.8	17.2	5.2	6.3	4.8
1995F	25.2	8.2	1.6	6.8	15.7	4.3	6.3	4.3

F = forecast. * = less than \$500 million. Numbers are rounded.

1/ Farm types are defined as those with 50 percent or more of the value of production accounted for by a specific commodity or commodity group.

2/ Includes farms earning at least half their receipts from sales of wheat, corn, soybean, rice, sorghum, barley, oats, or a mix of cash grains.

3/ Cash receipts plus Government payments plus farm-related income.

4/ Gross cash income minus cash expenses.

Appendix table 7--Farm business balance sheet, 1990-95

Item	1990	1991	1992	1993	1994F	1995F
Billion dollars						
Farm assets	848.6	842.4	860.9	888.3	922	944 to 954
Real estate	628.2	623.2	633.1	656.3	692.0	704 to 714
Livestock and poultry	70.9	68.1	71.0	72.8	68.3	73 to 77
Machinery and motor vehicles	85.4	85.8	85.6	85.2	85.7	86 to 90
Crops stored 1/	23.0	22.2	24.2	23.3	23.4	22 to 26
Purchased inputs	2.8	2.7	3.9	4.2	5.0	3 to 5
Financial assets	38.3	40.6	43.1	46.6	48.0	46 to 50
Farm debt	137.4	138.8	138.6	141.9	147.2	148 to 152
Real estate 2/	74.1	74.5	75.0	76.0	78.1	76 to 80
Nonreal estate	63.2	64.3	63.6	65.9	69.1	70 to 74
Farm equity	711.2	703.6	722.2	746.4	775.0	795 to 805

F = forecast. Note that 1994 is still a forecast due to lack of farm land asset data at publication time.

1/ Non-CCC crops held on farm plus value above loan rate for crops held under CCC.

2/ Includes CCC storage and drying facility loans.

Appendix table 8--Farm financial measures, 1990-95

Ratios	1990	1991	1992	1993	1994F	1995F
	Ratio					
Liquidity ratios:						
Farm business debt service coverage 1/	2.27	2.22	2.44	2.53	2.17	2.2 to 2.4
Debt servicing 2/	0.15	0.15	0.14	0.14	0.14	0.13 to 0.16
Times interest earned ratio 3/	4.77	4.65	5.83	5.46	5.56	5.0 to 5.1
	Percent					
Solvency ratios:						
Debt/asset 4/	16.2	16.5	16.1	16.0	16.0	15 to 17
Debt/equity 5/	19.3	19.7	19.2	19.0	19.0	18 to 20
Profitability ratios:						
Return on equity 6/	2.7	1.8	2.6	1.7	2.10	1 to 2
Return on assets 7/	3.8	2.9	3.5	2.7	3.10	2 to 3
Financial efficiency ratios:						
Gross ratio 8/	71.7	72.7	70.6	70.9	74.7	70 to 74
Interest to gross cash farm income 9/	6.8	6.2	5.6	5.2	5.6	6 to 7
Asset turnover 10/	22.3	21.8	22.1	22.8	21.7	20 to 22
Net cash farm income to debt 11/	41.9	36.1	42.2	37.3	40.0	37 to 39

F = forecast. Note: 1994 ratios requiring asset values in computation are forecasts.

1/ Assesses the ability of farm businesses to repay interest and principal associated with farm business debt from net cash farm income. Higher values indicate a better cash position.

2/ Indicates the proportion of gross cash farm income needed to service debt. Lower values indicate a relatively better cash position.

3/ Focuses on the ability to meet interest payments out of net farm income. A higher value of the times interest-earned ratio indicates that net farm income covers more interest expense and that operator equity is less exposed to risk.

4/ Indicates the relative dependence of farm businesses on debt and their ability to use additional credit without impairing their risk-bearing ability.

5/ Measures the relative proportion of funds provided by creditors (debt) and owners (equity).

6/ Measures the per dollar returns to equity capital employed in the farm business from current income.

7/ Measures the per dollar return to farm assets from current income.

8/ Gives the proportion of gross cash farm income absorbed by cash production expenses. The higher the value of the ratio, the less efficient the farm sector is considered to be.

9/ Gives the proportion of gross farm revenue absorbed by interest payments. Higher values indicate a relatively fixed expense structure and less flexibility in meeting cash expenses as they arise.

10/ Measures the gross cash farm income generated per dollar of farm assets. The higher the value of the ratio relative to similar sized operations, the more efficiently the farm business uses its assets.

11/ Reflects the strain placed on cash-flow to retire debt. The lower the value, the greater the stress placed on farm earnings that remain after all payments necessary to retire farm debt on schedule have been made.

Appendix table 9--Farm marketings, 1993 and 1994, government payments, 1994 and principal commodities, 1994, by state

State	Farm marketings 1993			Farm marketings 1994			1994 Government payments	State rank for total farm marketings, four principal commodities in order of marketing receipts, and percentage of total marketings
	Total	Crops	Livestock and products	Total	Crops	Livestock and products		
	1,000 dollars							
AL	2,857,094	728,031	2,129,063	2,904,463	745,060	2,159,403	89,386	26-Broilers, cattle/calves, chickens, cotton(74%)
AK	26,763	20,834	5,929	27,716	21,685	6,031	1,348	50-Greenhouse, dairy prod, hay, potatoes(80%)
AZ	1,945,902	1,027,581	918,321	1,868,642	1,044,621	824,021	72,073	32-Cattle/calves, cotton, dairy prod, lettuce(66%)
AR	4,354,224	1,453,568	2,900,653	5,275,623	2,161,534	3,114,089	302,752	11-Broilers, rice, soybeans, cotton(70%)
CA	19,954,273	14,642,815	5,311,458	20,238,064	14,840,518	5,397,546	272,781	1-Dairy prod, greenhouse, grapes, cattle/calves(40%)
CO	4,197,400	1,204,991	2,992,409	4,028,834	1,250,177	2,778,657	177,109	17-Cattle/calves, wheat, corn, dairy prod(75%)
CT	474,510	214,495	260,015	472,741	221,848	250,893	177,038	44-Greenhouse, chicken eggs, dairy prod, aquaculture(69%)
DE	611,054	144,060	466,994	660,191	154,807	505,384	5,590	40-Broilers, soybeans, greenhouse, corn(82%)
FL	6,069,496	4,858,365	1,211,131	5,977,970	4,786,346	1,191,624	58,637	9-Oranges, greenhouse, sugar, tomatoes I/
GA	4,232,365	1,683,837	2,548,528	4,715,685	2,046,757	2,668,928	139,825	14-Broilers, peanuts, cotton, eggs, (61%)
HI	507,204	421,835	85,369	498,099	421,576	76,523	2,911	41-Sugar, pineapples, greenhouse, nuts(68%)
ID	2,890,394	1,723,322	1,167,072	2,954,516	1,755,529	1,198,987	127,289	23-Cattle/calves, potatoes, dairy prod, wheat(68%)
IL	8,150,527	5,916,210	2,234,317	8,222,796	6,158,108	2,064,688	303,159	5-Corn, soybeans, hogs, cattle/calves(87%)
IN	5,340,897	3,427,646	1,913,251	4,837,594	3,072,192	1,765,402	137,020	12-Corn, soybeans, hogs, cattle/calves(74%)
IA	10,389,722	4,605,688	5,784,034	10,084,316	4,964,427	5,119,889	732,567	3-Corn, hogs, soybeans, cattle/calves(90%)
KS	7,335,486	2,478,065	4,857,421	7,687,299	2,878,598	4,808,701	467,710	6-Cattle/calves, wheat, corn, soybeans(86%)
KY	3,414,258	1,689,532	1,724,726	3,230,277	1,584,844	1,645,433	54,894	22-Tobacco, cattle, horses/mules, corn(68%)
LA	1,795,135	1,090,195	704,940	2,012,687	1,308,964	703,723	181,575	31-Cotton, broilers, rice, sugar I/
ME	453,287	184,739	268,528	482,729	206,701	276,028	14,101	42-Potatoes, chicken eggs, dairy prod, aquaculture(73%)
MD	1,345,320	524,559	820,761	1,344,680	551,193	793,487	15,634	36-Broilers, greenhouse, dairy prod, soybeans(70%)
MA	490,598	369,501	121,097	458,731	341,421	117,310	4,694	45-Greenhouse, cranberries, dairy prod, eggs (67%)
MI	3,327,519	1,959,479	1,368,040	3,418,874	2,009,236	1,409,628	102,092	20-Dairy prod, greenhouse, soybeans, corn(52%)
MN	6,334,387	2,579,833	3,754,554	6,522,323	3,075,068	3,447,255	622,325	7-Dairy prod, soybeans, corn, cattle/calves(61%)
MS	2,632,254	1,064,193	1,568,061	2,916,359	1,210,043	1,706,316	225,483	25-Broilers, cotton, soybeans, aquaculture(71%)
MO	4,111,941	1,836,384	2,275,557	4,524,209	2,072,076	2,452,133	267,397	15-Cattle/calves, soybeans, hogs, corn (63%)
MT	1,801,742	853,576	948,166	1,857,217	990,433	866,784	256,151	33-Cattle/calves, wheat, barley, hay (86%)
NE	8,870,838	3,024,941	5,845,897	8,561,321	3,157,866	5,403,455	348,333	4-Cattle/calves, corn, hogs, soybeans (88%)
NV	295,700	102,586	193,114	299,121	109,696	189,425	4,785	47-Cattle/calves, hay, dairy prod, potatoes (87%)
NH	152,431	86,275	66,156	151,911	87,885	64,026	1,475	48-Dairy products, greenhouse, christmas trees, apples(63%)
NJ	699,685	502,376	197,309	768,405	585,841	182,564	7,596	39-Greenhouse, dairy products, green peppers, tomatoes I/
NM	1,536,797	413,468	1,123,329	1,523,959	425,073	1,098,886	61,092	34-Cattle/calves, dairy prod, hay, chili peppers (78%)
NY	2,859,586	978,076	1,881,510	2,857,581	970,556	1,887,025	42,443	27-Dairy prod, greenhouse, cattle/calves, apples (73%)
NC	6,019,322	2,829,349	3,189,973	6,369,139	3,036,625	3,332,514	77,646	8-Broilers, hogs, tobacco, greenhouse(60%)
ND	2,948,826	2,348,419	600,407	2,934,691	2,307,377	627,314	457,346	24-Wheat, cattle/calves, barley, sunflower (70%)
OH	4,490,584	2,834,933	1,655,651	4,475,151	2,897,802	1,577,349	117,097	16-Soybeans, corn, dairy prod, greenhouse(65%)
OK	3,949,327	1,141,304	2,808,023	3,864,455	1,164,650	2,699,805	207,036	18-Cattle/calves, wheat, broilers, greenhouse (78%)
OR	2,557,447	1,809,465	747,982	2,651,530	1,925,560	725,970	74,426	28-Greenhouse, cattle/calves, hay, dairy prod(44%)
PA	3,806,940	1,186,935	2,620,015	3,755,276	1,143,263	2,612,013	32,686	19-Dairy prod, cattle/calves, greenhouse, mushrooms(67%)
RI	80,461	66,657	13,804	80,748	68,461	12,287	451	49-Greenhouse, dairy prod, chicken eggs, sweet corn(72%)
SC	1,249,116	648,891	600,225	1,361,759	746,869	614,890	60,198	35-Broilers, tobacco, greenhouse, cattle/calves, (47%)
SD	3,200,009	1,236,183	1,963,826	3,342,603	1,698,537	1,644,066	289,214	21-Cattle/calves, corn, soybeans, wheat(68%)
TN	2,025,569	1,063,968	961,601	2,151,724	1,169,745	981,979	95,610	30-Cattle/calves, dairy prod, cotton, tobacco(54%)
TX	12,662,264	4,492,070	8,170,224	12,552,238	4,324,186	8,228,052	863,213	2-Cattle/calves, cotton, dairy prod, greenhouse(71%)
UT	831,399	217,691	613,708	818,862	221,289	597,573	32,051	37-Cattle/calves, dairy prod, hay, turkeys(72%)
VT	489,196	87,330	401,866	480,548	90,770	389,778	4,234	43-Dairy products, cattle/calves, greenhouse, hay(87%)
VA	2,094,682	697,008	1,397,674	2,159,252	773,057	1,386,195	34,254	29-Broilers, Cattle/calves, dairy prod, turkeys(53%)
WA	4,632,786	3,074,675	1,558,111	4,720,482	3,111,831	1,608,651	152,854	13-Cattle/calves, dairy prod, apples, wheat(55%)
WV	404,574	81,117	323,457	402,749	74,201	328,548	5,513	46-Broilers, cattle/calves, turkeys, dairy products (72%)
WI	5,395,090	1,294,250	4,100,840	5,384,188	1,439,320	3,944,868	236,484	10-Dairy prod, cattle/calves, corn, hogs(77%)
WY	840,955	180,505	660,450	778,364	157,348	621,016	38,128	38-Cattle/calves, sugar beets, hay, sheep/lambs(87%)
US	177,137,366	87,101,826	90,035,540	179,668,692	91,561,570	88,107,122	7,881,036	Cattle/calves, dairy prod, corn, hogs (52%)

1/ Percentage of total marketings can not be published because cash receipts data for one or more of these commodities are confidential so as to avoid disclosure of information about individual producers.

Appendix table 10--Net farm income for states, 1993-94

State	1993			1994		
	Gross farm income	Total production expenses	Net farm income	Gross farm income	Total production expenses	Net farm income
1,000 dollars						
ALABAMA	3,443,628	2,429,279	1,014,349	3,630,797	2,508,041	1,122,756
ALASKA	35,386	25,649	9,737	36,732	27,690	9,042
ARIZONA	2,149,297	1,482,451	666,846	2,048,015	1,566,366	481,649
ARKANSAS	5,450,753	4,442,482	1,008,271	6,010,091	4,591,211	1,418,880
CALIFORNIA	21,776,652	16,352,310	5,424,342	21,838,297	16,761,150	5,077,147
COLORADO	4,775,425	3,763,751	1,011,674	4,580,564	3,972,873	607,691
CONNECTICUT	518,705	341,539	177,166	522,756	356,210	166,546
DELAWARE	670,181	560,079	110,102	734,359	607,571	126,788
FLORIDA	6,437,829	3,925,991	2,511,838	6,278,174	4,027,310	2,250,864
GEORGIA	4,912,082	3,438,507	1,473,575	5,650,109	3,595,584	2,054,525
HAWAII	537,808	490,400	47,408	537,898	511,343	26,555
IDAHO	3,336,858	2,261,731	1,075,127	3,393,798	2,728,663	665,135
ILLINOIS	9,025,567	7,786,490	1,239,077	9,715,008	7,795,608	1,919,400
INDIANA	5,824,336	4,907,579	916,757	5,712,444	4,855,320	857,124
IOWA	10,618,449	10,037,318	581,131	13,116,131	10,322,845	2,793,286
KANSAS	8,582,552	7,062,513	1,520,039	9,053,163	7,375,066	1,678,097
KENTUCKY	3,860,130	2,730,591	1,129,539	3,879,365	2,670,214	1,209,151
LOUISIANA	2,300,868	1,918,788	382,080	2,485,155	1,964,966	520,189
MAINE	549,859	421,389	128,470	555,878	458,129	97,749
MARYLAND	1,511,536	1,234,533	277,003	1,572,948	1,296,607	276,341
MASSACHUSETTS	551,546	368,788	182,758	529,721	389,783	139,938
MICHIGAN	3,921,154	3,422,442	498,712	3,835,440	3,642,909	192,531
MINNESOTA	7,043,343	7,041,615	1,728	8,928,249	7,521,107	1,407,142
MISSISSIPPI	3,233,915	2,884,604	349,311	3,679,497	3,009,866	669,631
MISSOURI	4,950,539	4,296,119	654,420	5,378,851	4,414,372	964,479
MONTANA	2,557,916	1,742,421	815,495	2,412,296	1,958,414	453,882
NEBRASKA	9,786,581	7,886,619	1,899,962	9,973,084	7,708,863	2,264,221
NEVADA	329,566	230,493	99,073	339,817	272,741	67,076
NEW HAMPSHIRE	189,803	141,791	48,012	193,728	147,959	45,769
NEW JERSEY	810,632	599,315	211,317	900,310	651,377	248,933
NEW MEXICO	1,704,145	1,244,054	460,091	1,775,462	1,397,959	377,503
NEW YORK	3,124,029	2,588,290	535,739	3,095,483	2,758,880	336,603
NORTH CAROLINA	7,035,881	4,484,694	2,551,187	7,677,672	4,804,261	2,873,411
NORTH DAKOTA	3,488,154	2,962,237	525,917	3,968,105	3,109,333	858,772
OHIO	5,086,906	4,191,477	895,429	5,416,081	4,246,397	1,169,684
OKLAHOMA	4,605,137	3,412,438	1,192,699	4,826,530	3,693,650	1,132,880
OREGON	3,551,371	2,857,857	693,514	3,592,832	3,069,349	523,483
PENNSYLVANIA	4,095,660	3,261,910	833,750	4,159,955	3,486,627	673,328
RHODE ISLAND	89,028	47,564	41,464	89,793	48,075	41,718
SOUTH CAROLINA	1,429,212	1,132,346	296,866	1,619,873	1,158,470	461,403
SOUTH DAKOTA	3,810,808	2,828,965	981,843	4,276,139	2,922,431	1,353,708
TENNESSEE	2,584,885	2,082,536	502,349	2,712,680	2,065,444	647,236
TEXAS	15,652,753	11,701,333	3,951,420	15,334,479	11,590,811	3,743,668
UTAH	967,942	649,192	318,750	999,696	758,702	240,994
VERMONT	520,022	403,941	116,081	539,376	425,076	114,300
VIRGINIA	2,332,502	1,879,127	453,375	2,523,137	1,914,762	608,375
WASHINGTON	5,677,388	4,309,133	1,368,255	5,462,311	4,539,877	922,434
WEST VIRGINIA	474,556	390,725	83,831	502,870	412,788	90,082
WISCONSIN	6,008,955	5,507,153	501,802	6,482,584	5,856,361	626,223
WYOMING	1,036,618	745,238	291,380	893,654	771,923	121,731
UNITED STATES	202,968,848	160,907,787	42,061,061	213,471,387	166,741,334	46,730,053

Appendix table 11--State rankings for net farm income: total, per farming operation, and per acre, 1994

Rank	Total		Per Operation		Per Acre	
	State	Value (\$1,000)	State	Value (\$1,000)	State	Value (Dollars)
1	CALIFORNIA	5,077,147	ARIZONA	65,088	RHODE ISLAND	662
2	TEXAS	3,743,668	CALIFORNIA	64,268	CONNECTICUT	427
3	NORTH CAROLINA	2,873,411	RHODE ISLAND	59,597	NORTH CAROLINA	309
4	IOWA	2,793,286	FLORIDA	57,714	NEW JERSEY	289
5	NEBRASKA	2,264,221	DELAWARE	50,715	MASSACHUSETTS	233
6	FLORIDA	2,250,864	NORTH CAROLINA	49,542	DELAWARE	222
7	GEORGIA	2,054,525	GEORGIA	45,656	FLORIDA	219
8	ILLINOIS	1,919,400	CONNECTICUT	43,828	CALIFORNIA	170
9	KANSAS	1,678,097	NEBRASKA	41,168	GEORGIA	170
10	ARKANSAS	1,418,880	SOUTH DAKOTA	39,815	MARYLAND	126
11	MINNESOTA	1,407,142	IDAHO	32,446	ALABAMA	110
12	SOUTH DAKOTA	1,353,708	ARKANSAS	32,247	NEW HAMPSHIRE	104
13	KENTUCKY	1,209,151	NEW JERSEY	27,970	ARKANSAS	94
14	OHIO	1,169,684	NEW MEXICO	27,963	SOUTH CAROLINA	90
15	OKLAHOMA	1,132,880	NEVADA	27,948	PENNSYLVANIA	86
16	ALABAMA	1,122,756	IOWA	27,656	KENTUCKY	86
17	MISSOURI	964,479	NORTH DAKOTA	26,837	IOWA	84
18	WASHINGTON	922,434	KANSAS	25,817	VERMONT	82
19	NORTH DAKOTA	858,772	WASHINGTON	25,623	OHIO	77
20	INDIANA	857,124	ILLINOIS	24,927	MAINE	72
21	PENNSYLVANIA	673,328	ALABAMA	24,408	VIRGINIA	71
22	MISSISSIPPI	669,631	COLORADO	24,019	ILLINOIS	68
23	IDAHO	665,135	MASSACHUSETTS	23,323	LOUISIANA	62
24	TENNESSEE	647,236	MONTANA	20,173	WASHINGTON	58
25	WISCONSIN	626,223	SOUTH CAROLINA	20,061	TENNESSEE	54
26	VIRGINIA	608,375	NEW HAMPSHIRE	19,070	INDIANA	54
27	COLORADO	607,691	MARYLAND	19,058	MISSISSIPPI	52
28	OREGON	523,483	TEXAS	18,718	IDAHO	49
29	LOUISIANA	520,189	LOUISIANA	18,578	NEBRASKA	48
30	ARIZONA	481,649	UTAH	18,538	MINNESOTA	47
31	SOUTH CAROLINA	461,403	VERMONT	18,435	NEW YORK	43
32	MONTANA	453,882	ALASKA	17,388	WISCONSIN	37
33	NEW MEXICO	377,503	MISSISSIPPI	17,170	KANSAS	35
34	NEW YORK	336,603	MINNESOTA	16,555	OKLAHOMA	33
35	MARYLAND	276,341	OKLAHOMA	16,184	MISSOURI	32
36	NEW JERSEY	248,933	OHIO	15,596	SOUTH DAKOTA	31
37	UTAH	240,994	OREGON	13,776	OREGON	30
38	MICHIGAN	192,531	INDIANA	13,605	TEXAS	29
39	CONNECTICUT	166,546	KENTUCKY	13,586	WEST VIRGINIA	24
40	MASSACHUSETTS	139,938	WYOMING	13,232	UTAH	22
41	DELAWARE	126,788	VIRGINIA	13,226	NORTH DAKOTA	21
42	WYOMING	121,731	PENNSYLVANIA	13,203	COLORADO	19
43	VERMONT	114,300	MAINE	12,862	MICHIGAN	18
44	MAINE	97,749	NEW YORK	9,350	HAWAII	17
45	WEST VIRGINIA	90,082	MISSOURI	9,186	ARIZONA	14
46	NEVADA	67,076	WISCONSIN	7,927	ALASKA	10
47	NEW HAMPSHIRE	45,769	TENNESSEE	7,798	NEW MEXICO	9
48	RHODE ISLAND	41,718	HAWAII	5,532	NEVADA	8
49	HAWAII	26,555	WEST VIRGINIA	4,504	MONTANA	8
50	ALASKA	9,042	MICHIGAN	3,703	WYOMING	4
	UNITED STATES	46,730,053	UNITED STATES	22,633	UNITED STATES	48

Appendix table 12a--U.S. feed grains production cash costs and returns, 1993-94

Item	Corn		Grain sorghum		Oats		Barley	
	1993	1994	1993	1994	1993	1994	1993	1994
Dollars per planted acre								
Gross value of production (excluding direct Government payments):								
Primary product	227.05	296.32	113.27	128.26	70.63	65.98	100.88	107.12
Secondary product	.00	.00	.00	.00	21.03	14.45	4.27	4.50
Total, gross value of production	227.05	296.32	113.27	128.26	91.66	80.43	105.15	111.62
Cash expenses:								
Seed	22.49	22.67	5.99	6.43	8.62	8.72	6.85	6.96
Fertilizer, lime, and gypsum	43.26	46.07	18.80	20.28	11.73	13.08	15.55	16.57
Chemicals	24.27	25.22	13.71	14.26	1.06	1.22	8.04	8.68
Custom operations 1/	8.97	10.05	4.48	4.46	5.27	6.93	3.96	4.27
Fuel, lube, and electricity	18.02	18.96	14.36	13.32	6.73	6.88	11.95	11.43
Repairs	13.95	16.13	12.42	13.15	7.15	8.45	12.40	13.30
Hired labor	7.55	7.54	7.84	8.12	5.15	4.76	4.72	4.75
Other variable cash expenses 2/	.43	.44	.45	.41	.00	.00	1.66	1.72
Total, variable cash expenses	138.94	147.08	78.05	80.43	45.71	50.04	65.13	67.68
General farm overhead	8.98	13.49	8.39	8.30	4.66	4.82	5.50	6.60
Taxes and insurance	18.11	20.68	11.48	12.81	18.78	17.67	10.52	12.04
Interest	11.86	15.96	8.69	10.31	3.82	3.66	8.58	9.63
Total, fixed cash expenses	38.95	50.13	28.56	31.42	27.26	26.15	24.60	28.27
Total, cash expenses	177.89	197.21	106.61	111.85	72.97	76.19	89.73	95.95
Gross value of production less cash expenses	49.16	99.11	6.66	16.41	18.69	4.24	15.42	15.67
Harvest-period price (dollars/bu.)	2.29	2.07	2.10	1.92	1.38	1.16	1.98	2.07
Yield (bu./planted acre)	99.15	143.15	53.94	66.80	51.18	56.88	50.95	51.75

Appendix table 12b--U.S. feed grains production economic costs and returns, 1993-94

Item	Corn		Grain sorghum		Oats		Barley	
	1993	1994	1993	1994	1993	1994	1993	1994
Dollars per planted acre								
Gross value of production (excluding direct Government payments):								
Primary product	227.05	296.32	113.27	128.26	70.63	65.98	100.88	107.12
Secondary product	.00	.00	.00	.00	21.03	14.45	4.27	4.50
Total, gross value of production	227.05	296.32	113.27	128.26	91.66	80.43	105.15	111.62
Economic (full ownership) costs:								
Variable cash expenses	138.94	147.08	78.05	80.43	45.71	50.04	65.13	67.68
General farm overhead	8.98	13.49	8.39	8.30	4.66	4.82	5.50	6.60
Taxes and insurance	18.11	20.68	11.48	12.81	18.78	17.67	10.52	12.04
Capital replacement	28.70	32.96	26.33	27.98	27.48	27.42	25.29	27.14
Operating capital	2.17	3.43	1.22	1.87	.51	.73	1.01	1.58
Other nonland capital	11.20	13.32	13.31	14.65	8.85	9.17	12.97	14.41
Land	54.59	66.48	21.71	26.10	25.72	24.79	33.93	34.83
Unpaid labor	24.11	24.03	17.69	18.64	18.84	16.72	6.38	6.37
Total, economic costs	286.80	321.47	178.18	190.78	150.55	151.36	160.73	170.65
Residual returns to management and risk	-59.75	-25.15	-64.91	-62.52	-58.89	-70.93	-55.58	-59.03
Harvest-period price (dollars/bu.)	2.29	2.07	2.10	1.92	1.38	1.16	1.98	2.07
Yield (bu./planted acre)	99.15	143.15	53.94	66.80	51.18	56.88	50.95	51.75

1/ Includes technical services and commercial drying. 2/ Cost of purchased irrigation water and baling.

Appendix table 13a--U.S. food grain and sugar crops production cash costs and returns, 1993-94

Item	Wheat		Rice		Sugar beets		Sugarcane	
	1993	1994	1993	1994	1993	1994	1993	1994
	Dollars per planted acre						\$ /harvested acre	
Gross value of production (excluding direct Government payments):								
Primary product	99.21	103.64	322.16	402.56	723.47	855.61	936.23	970.06
Secondary product (straw, tops, etc.)	1.24	1.31	.00	.00	.90	1.12	.00	.00
Total, gross value of production	100.45	104.95	322.16	402.56	724.37	856.73	936.23	970.06
Cash expenses:								
Seed	6.94	7.01	19.49	28.14	35.71	39.85	35.89	35.77
Fertilizer, lime, and gypsum	14.37	15.21	43.18	45.72	57.69	60.38	60.59	63.05
Chemicals	6.35	6.18	55.67	58.33	69.21	70.07	63.14	65.71
Custom operations 1/	4.27	4.87	44.66	45.75	41.06	44.71	54.36	58.56
Fuel, lube, and electricity	8.90	8.12	60.28	62.51	43.10	40.57	26.03	24.70
Repairs	7.53	7.55	26.06	28.09	36.66	39.56	93.95	99.92
Hired labor	5.33	5.41	33.73	33.33	99.46	98.91	322.09	334.69
Drying	na	na	27.94	30.56	na	na	na	na
Purchased irrigation water	.20	.23	10.86	11.08	9.17	9.29	5.34	5.51
Freight & dirt hauling charges	na	na	na	na	14.56	13.92	.00	.00
Miscellaneous	.00	.00	.00	.00	11.21	11.36	8.77	8.71
Hauling allowance (-)	na	na	na	na	-7.01	-7.13	-7.63	-6.91
Total, variable cash expenses	53.89	54.58	321.87	343.51	410.82	421.49	662.53	689.72
General farm overhead	6.04	6.39	26.72	28.36	39.77	38.86	86.66	88.27
Taxes and insurance	10.39	10.74	25.48	29.02	45.85	46.37	36.08	38.44
Interest	7.87	7.76	23.59	23.42	49.09	45.40	11.95	11.39
Total, fixed cash expenses	24.30	24.89	75.79	80.80	134.71	130.63	134.70	138.10
Total, cash expenses	78.19	79.47	397.66	424.31	545.53	552.12	797.23	827.82
Gross value of production less cash expenses	22.26	25.48	-75.50	-21.75	178.84	304.61	138.99	142.24
Harvest-period price (bu. wheat, cwt. rice, or net ton sugar beets and sugarcane) 2/	2.99	3.18	5.81	6.58	38.98	38.98	28.50	28.50
Yield (bu. wheat, cwt. rice, or net ton sugar beets and sugarcane/planted acre) 3/	33.18	32.59	55.45	61.18	18.56	21.95	32.85	34.04

Appendix table 13b--U.S. food grain and sugar crops production economic costs and returns, 1993-94

Item	Wheat		Rice		Sugar beets		Sugarcane	
	1993	1994	1993	1994	1993	1994	1993	1994
	Dollars per planted acre						\$ /harvested acre	
Gross value of production (excluding direct Government payments):								
Primary product	99.21	103.64	322.16	402.56	723.47	855.61	936.23	970.06
Secondary product (straw, tops, etc.)	1.24	1.31	.00	.00	.90	1.12	.00	.00
Total, gross value of production	100.45	104.95	322.16	402.56	724.37	856.73	936.23	970.06
Economic (full ownership) costs:								
Variable cash expenses	53.89	54.58	321.87	343.51	410.82	421.49	662.53	689.72
General farm overhead	6.04	6.39	26.72	28.36	39.77	38.86	86.66	88.27
Taxes and insurance	10.39	10.74	25.48	29.02	45.85	46.37	36.08	38.44
Capital replacement	11.38	11.37	53.83	58.02	48.43	52.34	69.87	70.99
Operating capital	.84	1.27	5.03	8.01	6.41	9.82	10.34	16.07
Other nonland capital	13.84	14.22	20.48	21.14	25.23	28.04	27.57	28.99
Land	47.25	48.40	73.22	93.54	124.05	135.42	147.48	126.90
Return to coop share	na	na	na	na	13.28	20.68	na	na
Unpaid labor	9.69	9.61	25.17	25.07	43.91	43.42	15.16	14.77
Total, economic costs	153.32	156.58	551.80	606.67	757.75	796.44	1055.70	1074.15
Residual returns to management and risk	-52.87	-51.63	-229.64	-204.11	-33.38	60.29	-119.47	-104.09
Harvest-period price (bu. wheat, cwt. rice, or net ton sugar beets and sugarcane) 2/	2.99	3.18	5.81	6.58	38.98	38.98	28.50	28.50
Yield (bu. wheat, cwt. rice, or net ton sugar beets and sugarcane/planted acre) 3/	33.18	32.59	55.45	61.18	18.56	21.95	32.85	34.04

1/ Includes technical services such as soil testing and insect scouting. 2/ 1994 season-average sugar prices are not available.

3/ Sugarcane yields na on a per-harvested-acre basis rather than na per-planted-acre basis.

Appendix table 14a--U.S. oilseeds and cotton production cash costs and returns, 1993-94

Item	Soybeans		Peanuts		Cotton	
	1993	1994	1993	1994	1993	1994
Dollars per planted acre						
Gross value of production (excluding direct Government payments):						
Primary product	186.35	219.56	562.67	765.90	274.80	421.04
Secondary product	.00	.00	7.91	8.65	51.31	56.35
Total, gross value of production	186.35	219.56	570.58	774.55	326.11	477.39
Cash expenses:						
Seed	12.46	13.84	71.18	78.57	14.31	14.79
Fertilizer, lime, and gypsum	8.82	9.25	42.40	44.53	36.28	38.16
Chemicals	24.13	24.45	92.57	90.97	49.63	49.87
Custom operations 1/	3.55	3.73	7.92	8.76	17.67	19.59
Fuel, lube, and electricity	8.31	7.93	26.78	33.07	33.00	31.03
Repairs	9.61	10.50	27.60	29.91	25.37	25.67
Hired labor	6.10	6.02	44.93	47.52	38.56	39.47
Drying or ginning	na	na	12.71	16.58	51.29	52.74
Other variable cash expenses 2/	.04	.04	.56	.58	5.40	5.63
Total, variable cash expenses	73.02	75.76	326.65	350.49	271.51	276.95
General farm overhead	9.79	11.03	19.92	31.39	15.11	17.05
Taxes and insurance	17.47	18.69	17.57	24.81	20.03	22.35
Interest	12.49	13.17	38.93	38.57	17.77	17.68
Total, fixed cash expenses	39.75	42.89	76.42	94.77	52.91	57.08
Total, cash expenses	112.77	118.65	403.07	445.26	324.42	334.03
Gross value of production less cash expenses	73.58	100.91	167.51	329.29	1.69	143.36
Harvest-period price (bu. soybeans, lbs. peanuts and cotton)	6.12	5.32	.29	.29	.50	.64
Yield (bu. soybeans or lbs. peanuts and cotton per planted acre)	30.45	41.27	1940.24	2641.03	549.60	657.87

Appendix table 14b--U.S. oilseeds and cotton production economic costs and returns, 1993-94

Item	Soybeans		Peanuts		Cotton	
	1993	1994	1993	1994	1993	1994
Dollars per planted acre						
Gross value of production (excluding direct Government payments):						
Primary product	186.35	219.56	562.67	765.90	274.80	421.04
Secondary product	.00	.00	7.91	8.65	51.31	56.35
Total, gross value of production	186.35	219.56	570.58	774.55	326.11	477.39
Economic (full ownership) costs:						
Variable cash expenses	73.02	75.76	326.65	350.49	271.51	276.95
General farm overhead	9.79	11.03	19.92	31.39	15.11	17.05
Taxes and insurance	17.47	18.69	17.57	24.81	20.03	22.35
Capital replacement	20.80	22.79	46.41	50.36	48.63	49.21
Operating capital	1.14	1.76	5.10	8.17	4.24	6.45
Other nonland capital	11.79	13.38	23.97	26.82	17.44	17.66
Land	51.44	56.21	97.77	96.11	38.03	47.45
Peanut quota	na	na	115.40	118.48	na	na
Unpaid labor	18.72	18.78	41.24	43.48	26.03	27.14
Total, economic costs	204.17	218.40	694.03	750.11	441.02	464.26
Residual returns to management and risk	-17.82	1.16	-123.45	24.44	-114.91	13.13
Harvest-period price (bu. soybeans, lbs. peanuts and cotton)	6.12	5.32	.29	.29	.50	.64
Yield (bu. soybeans or lbs. peanuts and cotton per planted acre)	30.45	41.27	1940.24	2641.03	549.60	657.87

1/ Includes technical services such as soil testing and insect scouting. 2/ Cost of purchased irrigation water.

Appendix table 15--U.S. tobacco production cash costs and returns, 1993-94

Item	Flue-cured		Burley	
	1993	1994	1993	1994
Dollars per planted acre				
Gross value of production 1/	3,726.78	4,089.80	3,828.13	4,293.90
Variable Costs:				
Labor 2/	665.25	705.17	1,404.13	1409.06
Noncash benefits 3/	22.95	23.79	15.16	15.31
Fertilizer and lime 4/	182.18	196.27	240.20	243.89
Plant bed materials 5/	44.03	45.49	72.17	76.28
Chemicals 6/	211.08	212.80	89.14	92.78
Custom operations	6.89	7.81	9.75	10.86
Fuel and lubrication 7/	60.52	55.26	103.69	101.63
Curing fuel and electricity 8/	301.16	274.97	7.87	7.19
Repairs 9/	136.50	140.33	98.14	103.62
Warehouse fee	98.76	108.38	200.98	225.43
No-net-cost & marketing assessment	22.17	72.60	21.08	105.30
Inspection and grading fee	15.52	16.94	14.76	16.38
Interest	18.95	21.13	16.78	17.08
Other 10/	3.49	3.74	19.92	21.23
Total, variable costs	1,789.45	1,884.68	2,313.77	2,446.04
Machinery and barn ownership costs:				
Capital replacement	280.76	289.72	265.75	273.31
Return to other nonland capital	96.04	98.78	108.70	109.81
Taxes and insurance	128.24	134.22	117.99	125.06
Total ownership costs	505.04	522.72	492.44	508.18
Other costs:				
General farm overhead	241.29	289.72	378.98	425.10
Land and quota charge 11/	893.43	977.26	1,238.43	1,383.47
Total excluding land and quota	2,535.78	2,697.12	3,185.19	3,379.32
Yield (lbs./acre)	2,217	2,420	2,108	2,340

1/ Revised. Major changes in preliminary estimates published September 1994 were due to NASS yield revisions. 2/ Includes operator, family, exchange, and hired labor valued at prevailing hired wage rates. 3/ Includes rental values of housing, personal property, utilities, drinks, snacks, and field toilets. 4/ Includes custom costs if they could not be separated. 5/ Includes plant bed seed, fertilizer, pesticides, fumigants, and purchased plants. 6/ Includes insecticides herbicides, fungicides, pesticides, and growth regulators. Also includes custom costs if they could not be separated. 7/ Includes tractors, machinery, and irrigation fuel and lubrication. 8/ Includes cost of LP gas, fuel oil, or diesel, and electricity used to cure tobacco. 9/ Includes machinery, equipment, irrigation and barn repairs. 10/ Includes cover crop seed, sticks, and twine. 11/ Weighted average of cash and share rents.

Appendix table 16a--U.S. cow-calf production cash costs and returns, 1993-94

Item	1993	1994
	\$/bred cow	
Gross value of production:		
Steer calves	61.45	55.57
Heifer calves	51.57	46.50
Yearling steers	133.28	120.34
Yearling heifers	72.88	66.06
Other cattle	111.00	100.74
Total, gross value of production	430.18	389.21
Cash expenses:		
Feeder cattle	14.87	13.28
Feed--		
Grain	8.19	6.93
Protein supplements	24.82	25.83
By-products	7.57	7.61
Harvested forages	77.25	79.94
Pasture	86.17	86.77
Total feed costs	204.00	207.08
Other--		
Veterinary and medicine	17.58	18.32
Livestock hauling	4.12	4.32
Marketing	4.12	4.30
Custom feed mixing	.20	.22
Fuel, lube	21.29	18.43
Machinery and building repairs	27.82	28.79
Hired labor	29.19	29.62
Other variable cash expenses	5.42	5.55
Total, variable cash expenses	328.61	329.91
General farm overhead	37.60	36.49
Taxes and insurance	15.56	15.60
Interest	33.13	30.07
Total, fixed cash expenses	86.29	82.16
Total, cash expenses	414.90	412.07
Gross value of production less cash expenses	15.28	-22.86

Appendix table 17a--U.S. milk production cash costs and returns, 1993-94

Item	1993	1994
	\$/cwt	
Gross value of production:		
Milk	12.78	12.99
Cattle	1.08	1.00
Other income 1/	.49	.51
Total, gross value of production	14.35	14.50
Cash expenses:		
Feed--		
Concentrates	3.58	3.69
By-products	.21	.21
Liquid whey	.10	.11
Hay	1.59	1.63
Silage	1.43	1.41
Pasture and other forage	.11	.12
Total feed costs	7.02	7.17
Other--		
Hauling	.40	.45
Artificial insemination	.13	.15
Veterinary and medicine	.34	.38
Bedding and litter	.20	.23
Marketing	.33	.37
Custom services and supplies	.38	.43
DHIA fees	.07	.08
Dairy assessment	.14	.17
Fuel, lube, and electricity	.50	.49
Machinery and building repairs	.71	.76
Hired labor	.69	.67
Total, variable cash expenses	10.91	11.35
General farm overhead	.47	.52
Taxes and insurance	.26	.29
Interest	.72	.74
Total, fixed cash expenses	1.45	1.55
Total, cash expenses	12.36	12.90
Gross value of production less cash expenses	1.99	1.60

Appendix table 16b--U.S. cow-calf production economic costs and returns, 1993-94

Item	1993	1994
	\$/bred cow	
Gross value of production	430.18	389.21
Economic (full ownership) costs:		
Variable cash expenses	328.61	329.91
General farm overhead	37.60	36.49
Taxes and insurance	15.56	15.60
Capital replacement	84.22	83.99
Operating capital	7.69	11.53
Other nonland capital	35.49	36.77
Land	.04	.04
Unpaid labor	89.25	89.99
Total, economic costs	598.46	604.32
Residual returns to management and risk	-168.28	-215.11

Appendix table 17b--U.S. milk production economic costs and returns, 1993-94

Item	1993	1994
	\$/cwt	
Gross value of production	14.35	14.50
Economic (full ownership) costs:		
Variable cash expenses	10.91	11.35
General farm overhead	.47	.52
Taxes and insurance	.26	.29
Capital replacement	1.94	2.03
Operating capital	.06	.09
Other nonland capital	.86	.92
Land	.01	.00
Unpaid labor	1.27	1.29
Total, economic costs	15.78	16.49
Residual returns to management and risk	-1.43	-1.99

1/ Includes the dairy's share of receipts from cooperative patronage dividends, assessment refunds, renting or leasing of dairy animals, the estimated value of manure as a fertilizer, and insurance indemnity payments.

Appendix table 18a--U.S. hog production cash costs and returns, 1993-94

Item	All hogs		Farrow to finish		Farrow to feeder pig		Feeder pig to finish	
	1993	1994	1993	1994	1993	1994	1993	1994
Dollars per hundredweight gain 1/								
Gross value of production:								
Market hogs	43.47	36.29	44.87	37.47	1.00	0.86	60.08	49.87
Feeder pigs	5.42	4.52	.47	.40	77.69	64.03	.05	.05
Cull stock	2.66	2.31	2.52	2.19	6.31	5.53	.02	.02
Breeding stock	2.40	2.11	.21	.18	.12	.11	.01	.01
Inventory change	-.51	.44	-.58	.41	-.14	.38	-.18	.75
Other income 2/	1.09	1.13	1.13	1.18	1.17	1.23	.93	.95
Total, gross value of production	54.53	46.80	48.62	41.83	86.15	72.14	60.91	51.65
Cash expenses:								
Feed--								
Grain	10.72	11.54	11.08	11.98	13.04	13.82	8.91	9.43
Protein sources	9.39	9.35	10.15	10.15	9.46	9.53	5.80	5.69
Complete mixes	5.27	5.69	3.85	4.16	13.91	14.99	7.18	7.76
Other feed items 3/	.57	.59	.53	.55	.75	.76	.35	.36
Total feed costs	25.95	27.17	25.61	26.84	37.16	39.10	22.24	23.24
Other--								
Feeder pigs	3.95	3.35	.17	.14	.04	.03	21.84	18.26
Veterinary and medicine	1.48	1.36	1.30	1.20	5.01	4.65	.81	.73
Bedding and litter	.09	.08	.06	.06	.21	.19	.13	.11
Marketing	.59	.56	.49	.46	2.66	2.60	.45	.42
Custom services and supplies	.49	.47	.42	.40	1.28	1.32	.39	.38
Fuel, lube, and electricity	1.70	1.56	1.60	1.48	5.02	4.61	.84	.76
Repairs	1.27	1.36	1.24	1.34	2.72	2.87	.86	.90
Hired labor	2.54	2.53	2.29	2.31	6.79	6.93	.93	.89
Total, variable cash expenses	38.06	38.44	33.18	34.23	60.89	62.30	48.49	45.69
General farm overhead	2.08	1.20	1.84	1.07	3.72	2.16	1.78	1.02
Taxes and insurance	1.12	.71	1.02	.65	2.30	1.47	1.08	.69
Interest	3.25	1.75	2.91	1.57	6.06	3.35	3.51	1.87
Total, fixed cash expenses	6.45	3.66	5.77	3.29	12.08	6.98	6.37	3.58
Total, cash expenses	44.51	42.10	38.95	37.52	72.97	69.28	54.86	49.27
Gross value of production less cash exp.	10.02	4.70	9.67	4.31	13.18	2.86	6.05	2.38

Appendix table 18b--U.S. hog production economic costs and returns, 1993-94

Item	All hogs		Farrow to finish		Farrow to feeder pig		Feeder pig to finish	
	1993	1994	1993	1994	1993	1994	1993	1994
Dollars per hundredweight gain 1/								
Gross value of production:								
Market hogs	43.47	36.29	44.87	37.47	1.00	0.86	60.08	49.87
Feeder pigs	5.42	4.52	.47	.40	77.69	64.03	.05	.05
Cull stock	2.66	2.31	2.52	2.19	6.31	5.53	.02	.02
Breeding stock	2.40	2.11	.21	.18	.12	.11	.01	.01
Inventory change	-.51	.44	-.58	.41	-.14	.38	-.18	.75
Other income 2/	1.09	1.13	1.13	1.18	1.17	1.23	.93	.95
Total, gross value of production	54.53	46.80	48.62	41.83	86.15	72.14	60.91	51.65
Economic (full ownership) costs:								
Variable cash expenses	38.06	38.44	33.18	34.23	60.89	62.30	48.49	45.69
General farm overhead	2.08	1.20	1.84	1.07	3.72	2.16	1.78	1.02
Taxes and insurance	1.12	.71	1.02	.65	2.30	1.47	1.08	.69
Capital replacement	10.24	10.86	9.92	10.54	22.66	24.13	7.11	7.47
Operating capital	.64	.91	.57	.81	1.01	1.47	.80	1.08
Other nonland capital	3.58	3.93	3.48	3.84	7.32	8.10	2.65	2.89
Land	.24	.24	.25	.25	.50	.51	.12	.11
Unpaid labor	4.86	4.80	4.64	4.59	10.54	10.30	4.32	4.22
Total, economic (full-ownership) costs	60.82	61.09	54.90	55.98	108.94	110.44	66.35	63.17
Residual returns to management and risk	-6.29	-14.29	-6.28	-14.15	-22.79	-38.30	-5.44	-11.52

1/ Cwt gain = (cwt sold - cwt purchased) + cwt inventory change. 2/ Value of manure production. 3/ Milk replacer, milk, milk by-products, antibiotics, and other medicated additives.

Appendix table 19a--U.S. feed grains production cash costs and returns, 1993-94 (including direct Government payments)

Item	Corn		Grain sorghum		Barley	
	1993	1994	1993	1994	1993	1994
Dollars per planted acre						
Gross value of production (including direct Government payments):						
Market value of primary product	227.05	296.32	113.27	128.26	100.88	107.12
Direct Government payments 1/	21.97	42.19	12.35	28.80	20.37	17.27
Haying/grazing on ACR and CU acreage plus any secondary products	.71	.11	.61	1.56	4.54	4.81
Total, gross value of production	249.73	338.62	126.23	158.62	125.79	129.20
Cash expenses:						
Seed	22.49	22.67	5.99	6.43	6.85	6.96
Fertilizer, lime, and gypsum	43.26	46.07	18.80	20.28	15.55	16.57
Chemicals	24.46	25.25	14.20	14.75	8.77	9.56
Custom operations 2/	8.97	10.05	4.48	4.46	3.96	4.27
Fuel, lube, and electricity	18.52	19.02	15.63	14.58	13.37	13.05
Repairs	14.10	16.15	13.40	14.27	13.63	14.93
Hired labor	7.66	7.56	8.49	8.84	5.08	5.21
Other variable cash expenses 3/	1.45	.59	.79	.94	1.92	2.07
Total, variable cash expenses	140.91	147.36	81.78	84.55	69.13	72.62
General farm overhead	9.62	17.72	9.24	15.07	6.45	7.40
Taxes and insurance	20.08	22.90	12.54	23.16	12.67	14.38
Interest	12.47	20.58	9.56	18.72	9.93	10.67
Total, fixed cash expenses	42.17	61.20	31.34	56.95	29.05	32.45
Total, cash expenses	183.08	208.56	113.12	141.50	98.18	105.07
Gross value of production less cash expenses	66.65	130.06	13.11	17.12	27.61	24.13
Harvest-period price (dollars/bu.)	2.29	2.07	2.10	1.92	1.98	2.07
Yield (bu./planted acre)	99.15	143.15	53.94	66.80	50.95	51.75
Percent of planted primary crop acres in program	70	74	72	74	67	69

Appendix table 19b--U.S. feed grains production economic costs and returns, 1993-94 (including direct Government payments)

Item	Corn		Grain sorghum		Barley	
	1993	1994	1993	1994	1993	1994
Dollars per planted acre						
Gross value of production (including direct Government payments):						
Market value of primary product	227.05	296.32	113.27	128.26	100.88	107.12
Direct Government payments 1/	21.97	42.19	12.35	28.80	20.37	17.27
Haying/grazing on ACR and CU acreage plus any secondary products	.71	.11	.61	1.56	4.54	4.81
Total, gross value of production	249.73	338.62	126.23	158.62	125.79	129.20
Economic (full ownership) costs:						
Variable cash expenses	140.91	147.36	81.78	84.55	69.13	72.62
General farm overhead	9.62	17.72	9.24	15.07	6.45	7.40
Taxes and insurance	20.08	22.90	12.54	23.16	12.67	14.38
Capital replacement	28.85	32.98	28.55	30.51	26.49	28.75
Operating capital	2.20	3.43	1.31	2.03	1.08	1.69
Other nonland capital	11.52	13.37	14.39	15.93	13.70	15.41
Land	61.46	75.87	23.30	28.00	39.74	42.33
Unpaid labor	24.50	24.07	18.93	20.02	7.01	7.15
Total, economic costs	299.14	337.70	190.04	219.27	176.27	189.73
Residual returns to management and risk	-49.41	.92	-63.81	-60.65	-50.48	-60.53
Harvest-period price (dollars/bu.)	2.29	2.07	2.10	1.92	1.98	2.07
Yield (bu./planted acre)	99.15	143.15	53.94	66.80	50.95	51.75
Percent of planted primary crop acres in program	70	74	72	74	67	69

1/ Deficiency payments. Payments are not adjusted for payment limitations. 2/ Includes technical services and commercial drying. 3/ Cost of purchased irrigation water, baling, cover crop seed, and other input items.

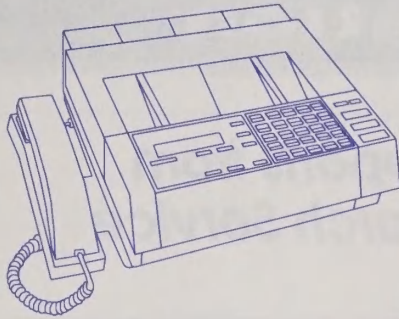
Appendix table 20a--U.S. cotton and rice production cash costs and returns, 1993-94
(including direct Government payments)

Item	Cotton		Rice	
	1993	1994	1993	1994
Dollars per planted acre				
Gross value of production (including direct Government payments):				
Market value of primary product	274.80	421.04	322.16	402.56
Cottonseed	35.11	38.84	n/a	n/a
Direct Government payments 1/	103.58	25.01	180.88	163.97
Marketing loan proceeds	15.48	.00	77.52	33.58
Haying/grazing on ACR and CU acreage	.46	.49	.04	.02
Total, gross value of production	429.43	485.38	580.60	600.17
Cash expenses:				
Seed	14.84	15.33	19.49	28.14
Fertilizer, lime, and gypsum	36.28	38.16	43.18	45.73
Chemicals	49.63	49.87	55.76	58.43
Custom operations 2/	17.82	19.75	44.67	45.76
Fuel, lube, and electricity	33.20	31.21	62.04	64.36
Repairs	25.65	25.96	30.36	32.13
Hired labor	38.73	39.64	39.45	38.23
Ginning or drying	51.29	56.52	27.94	30.56
Other variable cash expenses 3/	5.69	5.79	10.86	11.09
Total, variable cash expenses	273.13	282.23	333.75	354.42
General farm overhead	15.09	17.68	30.40	41.58
Taxes and insurance	20.74	23.18	28.99	42.54
Interest	17.93	18.34	26.85	34.33
Total, fixed cash expenses	53.76	59.20	86.24	118.45
Total, cash expenses	326.89	341.43	419.99	472.87
Gross value of production less cash expenses	102.54	143.95	160.61	127.31
Harvest-period price (lbs. cotton or cwt rice)	.50	.64	5.81	6.58
Yield (lbs. cotton or cwt. rice/planted acre)	549.60	657.87	55.45	61.18
Percent of planted primary crop acres in program	91	89	97	95

Appendix table 20b--U.S. cotton and rice production economic costs and returns, 1993-94
(including direct Government payments)

Item	Cotton		Rice	
	1993	1994	1993	1994
Dollars per planted acre				
Gross value of production (including direct Government payments)	429.43	485.38	580.60	600.13
Economic (full ownership) costs:				
Variable cash expenses	273.13	282.23	333.75	354.42
General farm overhead	15.09	17.68	30.40	41.58
Taxes and insurance	20.74	23.18	28.99	42.54
Capital replacement	48.99	49.58	62.80	66.46
Operating capital	4.26	6.58	5.87	9.20
Other nonland capital	17.62	17.83	23.79	24.10
Land	36.14	45.10	84.39	106.46
Unpaid labor	26.03	27.14	29.39	28.72
Total, economic costs	442.00	469.32	599.38	673.49
Residual returns to management and risk	-12.57	16.06	-18.78	-73.32
Harvest-period price (lbs. cotton or cwt rice)	.50	.64	5.81	6.58
Yield (lbs. cotton or cwt. rice/planted acre)	549.60	657.87	55.45	61.18
Percent of planted primary crop acres in program	91	89	97	95

1/ Deficiency payments. Payments are not adjusted for payment limitations. 2/ Includes technical services. 3/ Cost of purchased irrigation water, baling, and cover crop seed.



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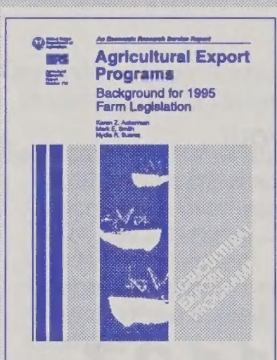
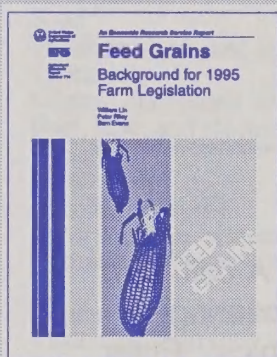
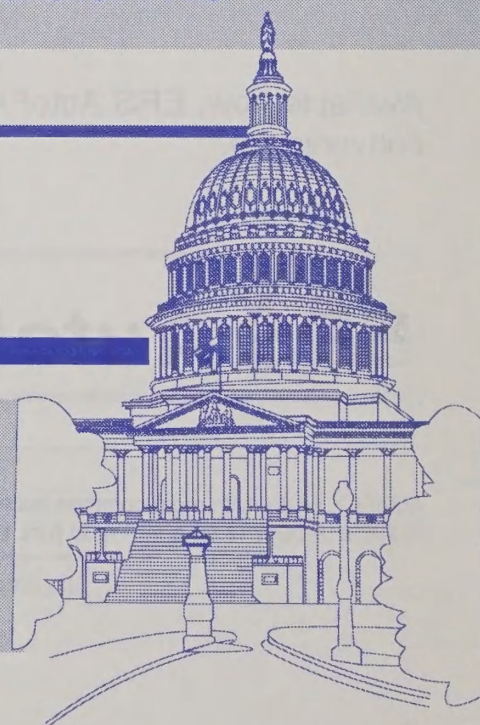
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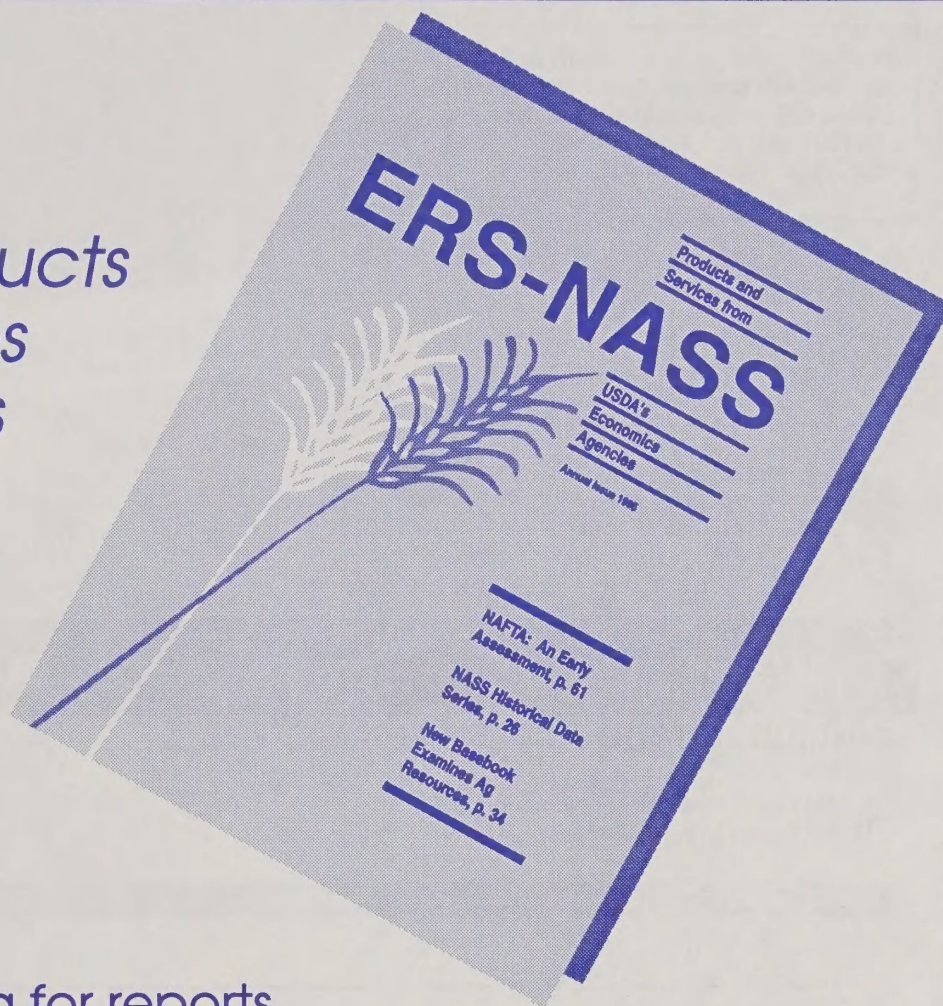
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